
RETHINKING
ENVIRONMENTAL
FUTURE

Didactic material of the NORDPLUS project

SOCIAL DILEMMAS OF GREENER FUTURE

Project number NPHE-2022/10087

Editorial board:

Skaidrīte Gūtmane (European Christian Academy, Latvia),

Elvyra Aciene (Klaipeda University, Lithuania),

Aimar Altosaar (NGO “Golden League”, Estonia).

RETHINKING ENVIRONMENTAL FUTURE

European Christian Academy

2023

CONTENTS

Skaidrīte Gūtmane. A Transforming Attitude Towards the Client in Social Work: The Praxis of the Antioch Schools of Anthropology and Theology 1

Guntis Dišlers. Three Whales on Whom the World Rests: God, Creation and Symbols. 16

Anda Ikauniece. Ecology of the Baltic Sea and the Possible Impact of Climate Fluctuations. 33

Voldemārs Spuņģis. Insects in a Changing World: From Past to Future (An Essay) 49

Lucas Andrianos. Environmental Ethics: The Fuzzy Limiting Factors for Sustainable Development. 55

Bjørn Øyvind Fjeld. A Christian Ecological Ethics with special reference to Human Stewardship of God's Creation 70

Antonio Barbarosa da Silva. The Biblical Foundation of Christian Ecological Ethics. 89

Rev. Fr. Christoforos Schuff, Hildegunn Marie Tonesses Schuff. Climate Justice as a Spiritual Challenge in an Oil-Rich Country. 109

Dace Dolace. Climate Change and Anthropological Change: Social Teaching of the Church on Ecology Issues. 126

Dalia Karatajiene, Jolita Kudinoviene, Vaidas Matonis, Jurga Sidrabiene. Metamorphosis of Religious and Visual Signs in the Context of Climate Change Educational Prospects. 156

Valentīna Liepa. Semantics of Nature in Sculptor Ojārs Feldbergs' Art. 172

A TRANSFORMING ATTITUDE TOWARDS THE CLIENT IN SOCIAL WORK: THE PRAXIS OF THE ANTIOCH SCHOOL OF ANTHROPOLOGY AND THEOLOGY

Skaidrīte Gūtmane
European Christian Academy (Latvia)

Abstract
This article is an analysis of the historical roots and ethical semantics of the social work concept 'a marginal person, a client' (the Greek words ξένος, *ksenos* and αςτος, *astos*). The question is relevant in modern social work in relation to the concept of 'strange' or 'marginal'. The article analyses how the concepts 'strange', 'other' and marginal' have re-entered the modern world from the Ancient world, as they were used in Ancient Syria (in the fourth century), Greece, and Medieval Europe. However, nowadays in social work theory they should be described anew using the discourses of social work and anthropology. The article explores the question of how to communicate with the 'other' or marginal person, based on reciprocity and internal solidarity.

Key words: social work client, history of social work, marginal person, human anthropology.

Introduction

"Rethinking Environmental Future" indeed is a challenge for modern man. The current NORDPLUS project has invited specialists in ecology and theology fields to discuss burning issues - climate change, sustainability, the role of humanity and personality at the center of drama.

This article is an analysis of the historical roots and ethical semantics of the social work concept 'a marginal person, a client' (the Greek words ξένος, *ksenos* and αςτος, *astos*). The concept is used neither in the sense of the American sociolo- gist Robert E. Park,[1] nor in the context of the OECD report (Schleicher, 2014). It is

[1] The concept of a marginal person first appeared in European sociology at the beginning of the 20th century in the essay 'Human Migration and the Marginal Man' by the American sociologist Robert E. Park. He used the concept 'marginal man' to denote a 'spiritually instable, discontent, restlessness and rejected man' (Holdo, 2020). Park believed that a marginal person is somebody who is in an ambiguous position between being a countryman and an urban man. His usual culture is being destroyed, and he has not yet found himself in the new culture. For this reason, his behaviour is not always acceptable in the urban social environment. Park developed this term from the Latin word margo meaning 'border, margin, edge'. Thus people who lived on

used with the understanding that its substance is at least 2,000 years old. It is used within an ancient theoretical framework in which marginalisation is perceived neither in relation to the social performance of a person, nor in a comparison of their social capacity to that of others, nor as a status in relation to one's income. Instead, it is understood as a person's own perception of their life, in which they analyse and evaluate their experience. For this reason, the concept of marginality has historically designated the *interior experience* of a person, of which others might not be aware. It is the internally felt and experienced attitude that is received from other people because of which a person perceives themselves as excluded, rejected, different/other, or marginal.

The concepts 'strange' 'other' and 'marginal' have re-entered the modern world from the Ancient world. They were used in Ancient Syria, Greece, and Medieval Europe. However, today, since these concepts are used in discourses of social work and anthropology, they should be described anew in the context of social work theory.

Ethical archetypes for working with a marginal person within client-oriented social work were provided in texts from the Ancient Antioch school (John Chryso- stom, 347–407; Theodoret of Cyrrus, 393–457; Ephrem the Syrian, 306–379, and others). These texts, together with the works of Alexandrian and Ancient Greek thinkers, form the foundation for ethical protonorms in social work. The contemporary author of the concept of protonorm, the Canadian philosopher and anthropologist Charles Taylor (1931), says that every person exists 'in a normative moral space. A protonorm is a basis for human conversation so that it can be carried out within a framework of truth, instead of delusion or lies. A protonorm is related to the maintenance of value aspects and the avoidance of humiliation in conversation' (Rotman, 2016; Hoffer, 2014). What he describes is basically the concept of *philox- enia* formulated by the Antioch school. *Philoxenia* (from the Greek φῐ̄λοξενῐ̄ᾱ, *filoksenia*, literally 'a love of strangers or that which is strange, foreign') or 'pres- ence' and 'hospitality' are ethical protonorms in working with a client who is in a crisis situation. They can foster significant changes in them.[2] These concepts continue to be relevant in the contemporary understanding of social activation. The concept of *proxenia* (from the Greek προξενία, literally 'those who treat strangers well') defines the foundations of the substance of client-oriented work. The ancient *proxeni* were the first 'social workers' who helped their clients by applying their

the margins of various social strata but did not join in any of them were considered 'marginal' (Burgess, Park, 1921).

[2] The concept 'horizons of social culture' is used in the anthropological sense, and as a criticism of the practice by which the Marxist approach to man, based on economic, political and sociological conditions, continues influencing the understanding of culture. In this article, the concept is used as an innovation, and it encompasses memories and the sense of inequality of a person in their social environment.

anthropological knowledge in practice (Ascetical Homilies of St Isaac the Syrian, 2011).

In contemporary theory of social work, the problem of the attitude towards 'the other' is a significant issue. 'The other' has been a fundamental category in human thinking since the very beginning. No social group can identify itself without naming the parameters of 'otherness'. The concept of the other has also introduced a new paradigm in the history of philosophy. 'The other' was introduced to modern society by the American sociologist George H. Mead in his classic work *Mind, Self and Society* (Mead, 1934). Today 'the other' is central to sociological analysis as the identities of both the majority and minority are constructed. Sociologists focus on social identities which reflect certain social categories: culture, gender, class, etc. These social categories affect our ideas about the way in which we want to or are able to perceive other people.

Ideas of similarity and otherness are important in the conversation between a social worker and their client. The client can gain a sense of identity and social belonging, because, as the philosopher Emmanuel Levinas argues, both the Self and the Other form an ethical unit, and, in it, the Self forms its identity. 'A mutual dialogue can take place on this ethical foundation because the Self is more responsible for the Other than *vice versa*. The Self and the Other are mutually complementary in a conversation' (Sarukkai, 1997).

This approach to working with clients was developed by the Antioch school of theological anthropology and exegesis[3] (according to fourth-century authors, Antioch was 'the capital of Eastern wisdom', located in present-day Syria). In Antiquity, the question of 'the other' and 'marginal' was not asked in the context of human discrimination or exclusion, but it was considered as an *anthropological problem*. It was to be understood as the practical possibility of an attitude of pushing away the other person or perceiving them from a distance. The concepts of marginal and the other (or strange) were considered and used as synonyms, because their meaning originates in a strategy of distancing, which should be restrained and overcome in human relationships.

Every person forms their personality and identity in openness to the other person: this is a contemporary thesis of Martin Heidegger. It is recognised in ontology, epistemology, communication and the social sciences. But still, in reality, a reverse tendency can be observed: a desire to distance, to withdraw, to seclude oneself from others. It creates a deformed perception of the other, which then takes the place of the real person.

[3] Exegesis is from the Greek word ἐξήγησις 'to bring out, interpret'. The concept is used when working with Ancient Sumerian Mesopotamian and other cultural texts, including the Bible. Exegesis is a science dealing with methods for the best interpretation of Ancient texts.

The German philosopher Bernhard Waldenfels (1934) defines the phenomenon of delimitation by summing up its three main aspects:

1. A person who is outside the sphere of ownness (Latin *externum*, English 'foreign').
2. A person who belongs to a different group (English 'alien').
3. A person who is different, heterogeneous (English 'strange').

In the process of delimitation or distancing, the first aspect is the most important. It is a person who is outside the sphere of ownness. This understanding, often used by professionals, treats a person as an object. It asks, 'Would I like to have it for myself?' Then the 'strange/other/marginal' is that which I do not want to have for myself (Вальдерфелс, 1999). It is a person whom I should help, but I see them as somebody who needs only to be responded to. The need for response becomes the foundation for a *new phenomenological approach to working with clients*. It means that the so-called responsive phenomenology is dominating. Its roots are well described by Edmund Husserl in his concept of angst/anger/nervousness. If the other person is perceived as marginal/other/strange, as somebody who needs 'only to be responded to', then the responsive forms of phenomenology are sufficient (Husserl, 1991). But the conversation is not meaningful, and there is no understanding of the other person's situation. Responsive phenomenology does not require to understand or to explore the client's situation. These tasks are substituted by responsiveness or 'quasi-dialogue', in which the 'strange/other/marginal' receives a formal answer instead of a meaningful dialogue.

Currently, the differentiation of the 'strange/other/marginal' is dissolving, because in each of them something 'dangerous' or 'evil' is hidden. A truly 'strange' client is one with whom a professional would not like to enter into a dialogue and probe into their personality. The neutrality between a professional and a client is dissolving, their attitude becomes emotional and is based on subjective emphases. An illusory hierarchy of values emerges: 'one's own' emerges who is both different from the 'strange/other/marginal' and also 'higher', 'of greater value' and more 'proper'. As this attitude increases, the 'strange' easily becomes an enemy.

Communication with the 'other', a marginal person, is a movement of internal solidarity of humanity. Of course, not every client is 'a marginal person'. However, every client is the 'other', and thus they can become the 'strange(r)'.

In administrative language, these concepts tend to shift towards psychological opinions about clients which then become foundational to the linguistic acts of social workers.[4] It appears that modern social work does not have its own discourse.

[4] A 'linguistic act' is a concept from the science of philology which denotes direction in conversation: a dialogue with a client can take place neutrally, then it is called a dialogue. But if a social worker uses the ideological pressure of their own personality or of another kind towards their client, then it is neither a conversation nor a dialogue, but a linguistic act. The direction of a conversation in terms of cognitive linguistics should

Clients are labelled as 'people with a communication handicap', 'psychologically disturbed persons', 'emotionally and mentally split people', etc. Sociologists, in their turn, point out that 'the other', 'marginal' clients are 'people who are in the care of the social services', and it is 'difficult to enter into a dialogue' with them because of their 'social isolation and exclusion'. At times it is emphasised that clients are 'professionally marginal', and therefore should be considered 'subjects with a communication handicap'. In conversations with them, 'ethical difficulties and barriers' emerge. Some legal sociologists suggest developing 'new, innovative communication models for the clients of social services, which methodologically are based on the communication difficulties with them, because a special communicative competence is needed' (Di Fabio, Pallazzeschi, 2016).

At the beginning of our era, a unique interdisciplinary approach to the human personality significantly and conceptually contributed to the exploration of interaction with the 'strange/other/marginal'. It was formulated and implemented by 'expert anthropologists', exegetes and historians from Syria (with Antioch being a significant centre of culture and education in Ancient Syria). Their anthropological insights have provided European civilisation with a formulation of ethical protonorms and an approach to the social activation of human beings. Outstanding personalities, such as Ephrem the Syrian, John Chrysostom, Isaac the Syrian (613–700), and others, developed Classical anthropology from the fourth to the seventh century AD, contributing to Eastern Christian anthropology, which then re-entered Western thought in the Middle Ages. Their contribution is invaluable to the development of the modern human sciences. It has been embedded in world philosophy as an exceptionally important scientific foundation for anthropology as a science, and for humanist ideas in European culture.

Antiochian anthropologists address problems from the perspective of realistic humanism, building on the anthropological tradition of Aristotle and Plato, which conceives the person holistically, as a unity of the spirit, soul and body. They formulate answers to questions such as: What is a person? What is their self-awareness, self-sufficiency? What are their various addictions and ways of healing them? They verbalise an understanding of the infinity of the human creative capacity, and reflect on issues such as human death and immortality.

The Antioch school of anthropology conceives the concepts of 'strange/other/marginal', namely 'one who should be helped, or a client', within the ethical paradigm of stewardship or economy (from the Greek οἰκονομία, *oikonomia*). Not welcoming and accepting the other in the 'common space of stewardship' is considered as not looking into their face, as happens in the so-called profes-

be avoided. A dialogue with a client should go on without a preconceived desire to influence the person to achieve administrative or political goals.

sional approach where 'a human being is forgotten, and a person fights only with themselves' (Бажанов, 1907). Every client is 'the other' and 'the strange(r)', not somebody who has not joined the socio-economic system. This is a truly innovative approach to the marginal or other person in the history of social work, which is possibly worth considering in the context of so-called problem-oriented social work.

The research conducted by Stephen M. Rose in 1985 and 1992 (Rose, 1985; 1992) with several focus groups of social work clients shows that clients are not satisfied with their interaction with social services professionals for the following reasons:

1. There is an abyss between the client's world and the world represented by the social worker. They are two different lives and lifestyles. Clients suggest that changes are needed in the life perception of professionals.
2. During discussions in the focus groups, clients point out that they need mostly encouragement towards choice and personal support in specific choice situations, not general help. They need understanding and a conversation which shows it.
3. Clients describe social workers as lacking trustworthiness and empathy.
4. Clients note that social workers treat them as 'static categories'. At times, stigmatising language is used, especially if the client is an addict or has been unemployed for a long time. It seems paradoxical to clients that social workers do not anticipate positive results, but instead foresee preset negative results in the client's life.

The consequences of anthropological and ethical aspects in the practice of social work are often negative. It is clear that social workers need anthropological knowledge in their conversations with clients so that they can plan for change. From the perspective of anthropology, social work practice should be called *praxis potential*, 'praxis of potential' (from the Greek φρόνησῐς, *fronēsis*, 'wisdom' or 'intelligence which releases positive praxis', namely, it is a method which gives the desired result in social work) (Prabakaran, 2011). In client-oriented social work, the ethics of communication with clients is principally important because it has consequences for the social activation of clients towards positive results.

The contribution of Syrian anthropologists in this context is very important. The conclusion that 'innovative communication models should be developed' by itself leads nowhere. The crisis of human identity continues to deepen and becomes a more pressing problem in the modern so-called risk society. It is crucial to understand in practical terms how to 'renew the anthropological framework of social cohesion, solidarity, "one's own" and "the other"' (Rose, 1985). It is important to activate those practical approaches from previous centuries which have been

tested and proven effective. Modern social work has developed in three stages: 1) social work as an ethical and moral position; 2) as a therapeutic striving; and 3) modern social work which develops as a management work or project. But, before it, in the Ancient world, social work started as a free-will service, as an expression of human solidarity and charity. It was both a freely willed commitment and an obligation to address the impact of social problems on people. It existed many centuries before the Industrial Revolution. In Ancient empirical practice, 'social work' was based on ontological anthropology.[5]

1. The historical origins of the concepts of 'marginal' and 'other'

The Ancient Antioch school of exegesis, anthropology and theology is a treasury of knowledge for European Christian civilisation. The Antioch school developed an interdisciplinary approach to man by bringing together anthropological, philosophical, metaphysical, social, biological and theological insights. Its versatility of wisdom and ethical erudition was attuned to the issues of its time. It is also attuned to the issues of Europe, conceptually growing into the European understanding of humanity.

The Greek word *ksenos* (ξένος) is difficult to translate because it contains several dimensions of meaning (Lidell, Scott, 1996). Thus 'a client' is:

> The first dimension of meaning: *a person who is strange, different, barbaric, eccentric.*
>
> The second dimension of meaning: *a person whom I do not know, someone from 'outside', delimited and delimiting themselves, poor.*
>
> The third dimension of meaning: *a stranger but a dear guest.*
>
> The fourth dimension of meaning: *a guest who has come to get something and should be welcome with honour; one to whom I should be present.*

The first dimension of meaning: the client as 'strange, different, barbaric'. These meanings are supplemented by descriptions such as 'incomprehensible' and 'complex'. In Antiquity, the application of this dimension of meaning to clients was considered an ethical violation, because it treats people as 'specimens' or 'objects'. They bother or disturb; when relating to them, distance should be maintained. Thus, a person is perceived in an illegitimate way, as an individual, not as a personality. The conversation with them is conducted in a formal way, anticipating disassociation from everything that could be mutual or solidary binding.

[5] Ontology (from the Greek words ὄντος, ontos for 'existing', and λόγος, logos for 'word, teaching') is one of the so-called first principles without which it is impossible to think of all other aspects of reality. The concept of reality is ontological itself, because there is nothing which is not 'reality'.

The main characteristic of a personality is their awareness of the special value of their uniqueness, the difference from others. According to the great theologian Vladimir Lossky, a personality is 'the non-conformity of a human to nature, because the main [characteristic] of a personality is the self-awareness that allows humans make choices' (Лосский, 1997).

In order to designate the uniqueness of a human being, the concepts of 'person' and 'personality' are used. They are the opposite of the concepts of 'individual' and 'nature'. An individual is a member of a class, expressed by the collective (for example, 'a wolf is an individual from a wolf pack'). If a human being is called an individual, then they are perceived as an animal living in a group. However, in the European anthropological tradition, every human being is a personality, and it implies their freedom, their sovereignty, their 'I' in differentiation from all others, independence and authority, orientation towards their internally held values, instead of those enforced from outside. Self-confidence is foundational to a personality; but an individual does not have to possess it (Лосский, 1995; Shmally, 2005; Buss, 1995; Emery, 2011).

To perceive a human being just as an individual means to violate the basic ethical premise which lies at the foundation of humanist convictions of previous centuries. Then the ethical canons of humanity start to seem insufficiently universal; a professional can view them in order of decreasing importance and call them a matter of 'taste' or 'professional etiquette'. Indeed, how is it possible that we work distantly with a uniformly 'professional' approach to the other person and consider it a norm? In Antiquity, it was mandatory to see one's client as a personality, as a special value, one who cannot ethically be given a formal answer. The concept of a client denotes a human being who is in need of assistance on their road towards self-awareness and social functioning. A 'client' means a free person who listens to the other person because they themselves are not aware of their rights and are dependent on a patron or protector.[6]

The second dimension of meaning: the client as somebody 'standing aside', 'pushed aside', 'poor'. John Chrysostom demonstrates why poverty should not be looked on negatively, because 'worse is a person who desires many goods and begins to judge another person by his own attitude to goods', seeing in their client nothing more than 'an aside-standing object who has few goods' (Творения св. отца Иоанна Златоуста, 1903). He continues: 'Wherever we go, to the mar-

[6] It might seem that there existed no concept of the 'client' then. However, this is not true. The existence of the concept of 'client kingdom' in the first century AD is attested to by, for example, finds in the Emesan dynasty cemetery in Syria, where the inscription 'a client kingdom' has been found. It was used to designate a politically or socially weaker kingdom. Thus, the concept of 'client' was used in Ancient Syria in the same way as it is used today. This concept from Antiquity has re-entered the modern world, and it also existed in all Ancient societies (Michelson, Doxtator, 2002).

ketplace, the square in the city centre, to some island or dry land, royal apartments or citizen councils, people are preoccupied everywhere with mundaneness; everybody, absolutely everybody, thinks about their *koilia*; the main measure of a person is their stomach.[7] And if a stomach is empty and a person is poor, is there anything else you can say? Only aside-standing, only marginal? Is the measure of a person the number of horses in his stable or how many horses he possesses and in what kind of carriage he rides? Or is a person measured by a line of camels in his herd? What if he possesses nothing? How will you look at him? How will you describe him and understand him? Does everybody just think of their stomach as the deepest, the most insatiable part of their body? And that is all? What shall I eat, drink, how shall I dress my stomach? If somebody cannot do it, he is a stranger, because he cannot do what each of you can; then he is a stranger and simply marginal?!' (*Ibid*.).

The Syrian anthropologists' ethical perspective of an egoistic, complacent person is intolerant: poor is the person who does not see the other person as a personality worthy of admiration. They also conclude that so-called righteous people are used to conceiving of others as 'objects with faults'.

In practical social work, a marginal person 'highlights' the pitiful state of a professional's ethical world. A professional is socially active and knows how to settle in comfortably, but perceives the other person as eccentric or marginalised, only because they are experiencing a life crisis.

The Syrian anthropologists emphasise the ethical significance of poverty: 'Poor is not he whose pockets are empty and clothes are worn out, but he in whom, upon meeting him, you could not awaken or see dreams;' 'Poverty is the mother of wisdom; many marginal people are wiser and more honest than the rich, wealthy, knowledgeable,' write the Syrian anthropologists (Бажанов, 1907). At times, the soul of a poor person is like gold, hidden under rags. Truly poor is the person who wants the other person to own many goods.

The third dimension of meaning: the client and presence *per se*. *Proxenia* (from the Greek προξενία, *proxenia*) is presence: this was the name of client-oriented social work at the dawn of our civilisation. 'Presence', 'unconditional acceptance' and 'hospitality' were imperative towards the strange, other, marginal personality. This attitude was implemented in the preparation of special rooms for welcoming 'strangers'. In this way, specialised social work institutions were developed where *proxeni*, the first social workers, worked by embodying the presence. First of all, they took care of their clients' participation in religious life, because they saw every person as a spiritual being: the ability and inability of one's

[7] The Greek word koilia means 'depth, the deepest part of a person'. It is one's stomach, even though it should be the heart (καρδιά, kardia).

soul and body derive from the power of the person's spirit. *Proxeni* also explained a person's social and political rights to them. In Syria, then in Greece and later in Europe, *proxeni* were highly esteemed; this work was taken up even by leading politicians (Smith, Smith, *A Compendious Syriac Dictionary*, 1957). In the following periods, the professionals of these institutions were replaced by a more centralised office which was disconnected from the citizens. The phenomenon of *proxenia* continued in Europe for a long time, and became an integral part of the Church and its life. Institutions were developed for 'the strange and those living on the margins' as places for special spiritual care and care of the soul.

John Chrysostom described this work during the period of Constantinople (400–405) (Пентковский, 2002). Then the important concepts for European sociology and social work, the concepts of *mutuality* and *presence*, were clarified. This work was described by the Greek word λειτουργια, liturgy, outlining the main obligation of the state and the city: 'The connection of goodness and generosity among people, giving and receiving help without judging anybody for what they possess or do not possess.'

The fourth dimension of meaning: the client and presence as an ethical norm, *philoxenia* and *xenophobia*. The concept of *philoxenia* is understood as a social work protonorm 'to be present' with the other person, 'to implement a charitable attitude towards every guest'. In the Syrian language, the construction *rahem aksnaye* means 'an eccentric, my friend' (Smith, Smith, 1957). 'Presence' is understood as an unconditional acceptance of the 'stranger, poorer, other person', without any judgment or discussion of the reasons for their life problems. Presence is the awareness that 'the same or even something worse can happen to me too.' Presence, from the perspective of the Syrian anthropologists, is *filantropia* (from the Greek φιλανθρωπια, literally 'a love of mankind'). Its opposite is misoxenia (from the Greek μίσος των ξένων, literally 'a hatred of strangers'), which is an ethically impermissible 'looking at one's client from above', imagining that 'I know what they need.' *Misoxenia* is expressed as one's inability to perceive the other person as a being created by God. *Xenophobia* is a concept of hate anthropology; it describes a setting where the goal is not to understand the outline of the client's life but to come to them with hate which can accidently be expressed in unkind, dismissive phrases. Instead, clients should be perceived as those 'blessed by my Father' (Matthew 25:34–36).

Ephrem the Syrian writes that 'we must not work for a marginal person but together with him, in unity with him, acknowledging goodness which is neither sentiment, nor emotion but an ethical value: YOU are significant to me!' (Hymns and Homilies of St Ephraim the Syrian, 2012). Every client

has a desire for spiritual fulfilment in life; in this way, humans differ from animals which have only physical needs. When spiritual needs are not met, people experience indefinable anxiety. The main spiritual need of a personality is a need for *mutuality* and *security*. This is provided by a proper ethical attitude to them. As Ephrem the Syrian writes: 'All that is needed is to accept a human as he is. Acceptance is an unobtrusive presence, human warmth, mutuality. It is an attitude which does not demand immediate change. I accept and listen to the thoughts and feelings of the other person as though he is both my guest and host at the same time. The other person feels this warmth, and it provides a foundation for his self-worth: "I might be worthy of somebody's love… I must start with myself"' (*Ibid.*).

It might seem that the Ancient anthropologists issued a call for altruism. But it was not so; their logic is more complex. For them, presence has a different ethical substance. It is well revealed in Homer's *Iliad*: Glaucus and Diomedes meet on the battlefield, and suddenly they realise that they are both human, they both belong to the family of humans (not gods). Diomedes closes their interaction with these words: 'So now I am your host and friend in the heart of Argos, you are mine in Lycia when I visit your country' (Homer, 1991). It is followed by an exchange of gifts that, according to researchers, was an obligatory condition of hospitality if they wanted to establish mutual trust.

'You looked at me, a stranger; you wanted to be beside me for a moment,' writes John Chrysostom. 'God will make you a citizen of heaven' (Бажанов, 2007). Why? Because 'one's own' and 'the strange/other' merge together in the ethical norm of presence as two sides of a coin. Presence gives strength to the weakest because, on a social level, mutuality is implemented with the purpose of 'helping you so that, from now on, you can help yourself'. Today this task of supporting clients' abilities is called 'subsidiary presence' (Katuvinec, 2007). It fosters the direction of a person towards the common good. 'Everyone who in a democratic, civil society desires to receive support and help should not be allowed to become a passive receiver from the state. A person should be involved in a community essentially, not formally or administratively. They should feel presence and the other person's interest in their situation ... For this reason, the principle of subsidiarity is an important principle in the European Union's mission to serve its every citizen,' writes M. Katuvinec, a senior researcher at the European Centre for Workers' Questions (Katuvinec, 2007)

In contemporary research, this approach is being developed by synergic anthropology, which enquires into philosophical and transdisciplinary concepts of how humans perceive the other person and what the possible results of openness towards the other are. It is a universal paradigm, as anthropology is becoming the

foundation for social work (Horujy, 2021; Maksimova, Fedotova, 2017). Research shows that clients' experience of interaction with others settles in their consciousness, it sums up, archives and develops a peculiar 'person's own resumé of themselves', some quintessence of themselves. It can be called the foundation of a client's self-identity which they possess internally. At the same time, every human being has a need for meaningful communication. It can play a significant part in the awakening of their social activity, but with the condition that a professional is able to synergically 'open' their client's possibilities of the 'potential personality', those which form the foundation of human self-identity. The possible, the other/different, in a client is 'the possibilities which are wrapped up in a bundle in their personality' (Делез, 1999).

This is a fundamental attitude in working with clients, it is a '*singulier*' (French for 'unique, extraordinary') competence of opening. The social ability or inability of one's client is directly related to the attitude towards them as a singularity or a unique personality. Presence releases the potential of energy in a person. 'To be together' is a competence of being solidary, a cultural fact which makes a human being recognise the value of their own personality. But a formally administrative approach awakens in a person 'a deadly desire to escape', as Isaac the Syrian puts it (Ascetical Homilies, 2011).

In the interaction between a social worker and their client, the quality of dialogue is very important. In client-oriented social work, both social inclusion and an understanding of truth are important. Of course, if the social work is performed within the concept of management (Ferguson, 2001; Jordan, Jordan, 2000; Lymbery, 2001; Lorenz, 2001; Dominelli, 1997), which is dominated by empirical practice and system management, the opinion of the client-personality, their life values and culture are often subjected to reduction, because the social work options are limited by fixed and standardised formulas (Prabarkan, 2011).

2. The strange (Greek *ksenos*) is the host (Latin *hospes*): An ethical paradox in working with a client

The rich ethical semantics of the Greek word ξενος, *ksenos* ('strange, marginal') also include the meanings of 'guest' and 'host'. Anybody who comes for help is a guest. Guests should be welcomed with hospitality. How? Both these words express the paradoxical substance of presence. When working with a marginal person, the 'winners' should be both client and professional. The weakest should awaken wisdom in the other's heart, and vice versa (Бажанов, 2007).

Antiochian anthropologists believe that hospitality towards one's client is measured not by the number of office hours but by one's respectful attitude towards

them and care for them. Theodoret of Cyrrus points out that in the Old Testament the owner of the house, or the host, did not order his servants to meet the stranger or beggar, but instead met them himself. *Philoxenia*, first and foremost, is openness and honesty towards one's client, towards 'the strange(r)'. It is mutuality and exchange with a hope-giving solidarity. When these ethical protonorms are present in one's professional stance towards the client, they release the professional for strategic action, and give a direction to social change in the client's life.

Conclusions

The professional culture of modern social work should not neglect or deny its cultural heritage. It transmits into the contemporary practice of social work the foundational codes and norms that in the course of history have proven themselves as axioms of human mutuality.

We live some 1,500 years after the time when Antiochian anthropologists, in their analytical way, reflected on their work with clients and the importance of ethical protonorms. Foreign words, such as *xenos*, *proxenia*, *filoxenia*, *misoxenia* and others, sound strange to our modern ears, but these concepts are in the 'life blood' of European nations, and they significantly influence the professional culture of European social work. It should be reiterated that these concepts are foundational to the modern concepts of mutuality, reciprocity and solidarity.

The approach we can learn from the Antioch school can also become ethically effective and fruitful in the paradigm of social work in Latvia for several reasons. Firstly, it emphasises that it is ethically impermissible to depersonalise a person and to standardise one's subjective opinion. Secondly, it points to mutuality by exchanging gifts: knowledge, time, trust and mutual enrichment. Thirdly, it shows how presence anticipates mutual obligation and excludes ignorance and arrogance in one's attitude towards the client. Finally, it fosters an awareness that the task of a professional is to provide their client with the common fraternity of humanity in the deepest sense of the word.

The client-oriented approach, based on ethical protonorms, leads us to consider how, in our conversations with clients, we could reach deeper, beyond their psychological identity. Every person is a paradox: clients know that they are different, that they have encountered difficulties, but they long for security and mutuality, for respect. Every client is a suffering human being, and it is the professional's presence and hospitality that can help in their social activation. Presence and hospitality are essentially therapeutic and social.

References

Ascetical Homilies of St. Isaac the Syrian. (2011). London: Sebastian Brock.

Burgess, E., Park, R. (1921). *Introduction to the Science of Sociology.* London: Library of Alexandria, 490 p.

Buss, A. (1995). The Individual in the Eastern Orthodox Tradition. *Archives de sciences sociales des religions*, *91*, 41–65.

Dominelli, I. (1997). *Sociology for Social Work*. London: Macmillan, 320 p.

Di Fabio, A., Pallazzeschi, L. (2016). Marginalization and Precariat: The Challenge of Intensifying Life Construction Intervention. *Journal of Psychology*, *30* (3), 34–53. University of Florence.

Emery, G., O. P. (2011). The Dignity of Being a Substance: Person, Subsistence and Nature. *Nova et Vetera*, 9 (4), 991–1001. University of Freiburg.

Ferguson, H. (2001). Social Work, Individualization and Life Politics. *British Journal of Social Work*, *31*, 41–55.

Hoffer, M. (2014). Conservation as a Protonorm for Moral Communication. *Journal of Mass Media Ethics*, *29* (4), 36–51.

Holdo, M. (2020). Marginalization and Riots: Rationalistic Explanation of Urban Unrest. *Theory and Society*, *37* (1), 67–79.

Homer. (1991). *The Iliad.* Transl. by Robert Fagles. London: Penguin Books, 518 p.

Horujy, S. (2021). The Project of Synergic Anthropology: Spiritual Practice as the Basics for a New Conception of Man. *Orthodox Christian Network*, February 3.

Husserl, E. (1991). On the Phenomenology of Consciousness of Internal Time (1893–1917). In E. Husserl. *Collected Works*, Vol. 4. Louvain: Springer.

Hymns and Homilies of St. Ephraim the Syrian. (2012). London: Sebastian Brock.

Jordan, B., Jordan, C. (2000). *Social Work and the Third Way. Tough Love as Social Policy*. London: Sage, 34–56.

Katuvinec, M. (2007). *Civic Responsibility in a Democracy of Values*. Trnava, Konigswinter, 367 p.

Lattuca, Lisa R. (2001). *Creating Interdisciplinarity*. Vanderbilt University Press, 48–64.

Lidell, H. G., Scott, R. (1996). *Greek – English Lexicon*. Oxford: Clarendon Press, 760 p.

Lorenz, K. (1999). *International Social Work: Themes and Perspectives*. Ashgate: Aldershot, 250 p.

Lymbery, M. (2001). Social Work at the Crossroads. *British Journal of Social Work*, *31*, 369–384.

Maksimova, E., Fedotova, N. (2017). Philosophical Dialogue: M. Heidegger and Modern Russian Anthropology. *Journal of Siberian Federal University, Humanities and Social Sciences*, *10*, 238–241.

Mead, George H. (1934). *Mind, Self and Society*. University of Chicago, 350 p.

Michelson, K., Doxtator, M. (2002). *Oneida-English, English-Oneida Dictionary*, 840 p.

Hierotheos, Metropolitan of Nafpaktos. (1998). *The Person in the Orthodox Tradition*. Athens: Birth of Theotokos Monastery, 349 p.

Prabakaran, M. (2011). Praxis Intervention: Towards a New Critical Social Work Practice. *SSRN Electronic Journal*. Doi: 102139/ssm/1765143/.

Rose, S. R. (Ed.). (1992). *Case management and social work practice.* White Plains, NY: Longman.

Rose, S. M. (1985). Reflections on Empowerment-Based Practice. *Social Work*, *45(5)*, 403–412.

Rotman, J. (2016). How to Restore Your Faith in Democracy. *The New Yorker*, Nov.

Sarukkai, S. (1997) The 'Other' in Anthropology and Philosophy. *Economic and Political Weekly*, *32* (24) (June 14–20), 37–55.

Schleicher, A. (2014). *Equity, Excellence and Inclusiveness in Education Policy. Policy lessons from around the World*. OECD. https://doi.org/10.1787/9789264214033-en

Shmaliy, V., Fr. (2005). Cosmology of the Cappadocian Fathers: A Contribution to Dialogue Between Science and Theology Today, *Faith and Philosophy: Journal of the Society of Christian Philosophers*, *22* (5), *Article 3*, 528–542. Doi: 10.5840/faithphil200522517.

Smith, R., Smith, J. (1957). *A Compendious Syriac Dictionary*. Oxford: Clarendon Press, 626 p.

Аристотель. (1976). *Метафизика.* Сочинения в 4-х т. Москва: Наука.

Бажанов, М. В., протоиерей. (1907). Св. Иоанн Златоуст и его пастырская деятельность в Антиохии. *Православный собеседник*, *2*, 597–670.

Бенвенист, Э. (1995). *Словарь индоевропейских социальных терминов.* Москва: Прогресс-Универс, 456 с.

Вальдерфелс, Б. (1999). *Ответ чужому: Основные черты респонзивной феноменологии. Мотив чужого.* Минск: Пропилен.

Делез, Ж. М. (1999). Турнье и мир без другого. В кн.: М. Турнье. *Пятница и тихоокеанский лимб*. Спб.: Амфора, 282–302.
Леонов Вадим, протоиерей. (2016). *Основы православной антропологии*. Москва: Издательство МП РПЦ, 456 с.
Лосский, В. (1995). *По образу и подобию*. Москва: Свято-Владимирское братство, 240 с.
Платон. *Сочинения*, т. 1–3. Москва: Наука, 1968–1972.
Творения св. отца Иоанна Златоуста в русском переводе. (1903). Т. 9, кн. 2. Спб.: Духовная Академия, 1008 с.
Пентковский, А. (2002). А*нтиохийская литургическая традиция в IV–V веках*. Журнал Московской Патриархии, *7*, 73–87.

Skaidrīte Gūtmane – professor, doctor of Humanities (Philology), Rector of the European Christian Academy (Latvia).

E-mail: rektore@kra.lv

Three Whales on Whom the World Rests: God, Creation and Symbols

Trīs vaļi, uz kuriem balstās pasaule: Dievs, radība un simboli

Guntis Dišlers, Mag. theol. (Latvia)

The article deals with wide scope of issues dealt within the current NORDPLUS project – interpretation of climate symbols against the background of current environmental changes. Facts describing global warming due to human activity are provided. Development of ecotheology is shortly introduced by description of criticism of the Western Christianity being partially responsible for neglect towards nature. Anthropological resources of the Eastern Orthodox Christian approach to ecology are marked by excerpts from Social Teaching of the Russian Orthodox Church. Difference between "dominion" and "stewardship" in human attitude towards nature is described on basis of linguistic analysis of respective texts from Genesis. Interface between nature and humanity is activated by use of symbols, and changes in environment cause subsequent shift in both interpretation and use of those symbols. Traditional symbols undergo ambiguous process of application in religion, art and daily use. Examples of modern environmentally-caring art are analyzed.

Key words: ecotheology, global warming, human impact, interpretation of the Bible, dominion, stewardship, symbols (use of)

Definition of Climate Change

Climate change is caused by factors that include oceanic processes (such as oceanic circulation), variations in solar radiation received by Earth, plate tectonics and volcanic eruptions, and human-induced alterations of the natural world; these latter effects are currently causing global warming.

Forcing mechanisms can be either "internal" or "external". Internal forcing mechanisms are natural processes within the climate system itself (e.g., the thermohaline circulation). External forcing mechanisms can be either natural (e.g., changes in solar output) or anthropogenic (e.g., increased emissions of greenhouse gases). Very often "climate change" is used to describe human-specific impacts and consequently it is causing misbalance in relationships between humans and nature. The term sometimes is used to refer specifically to climate change caused by human activity, as

opposed to changes in climate that may have resulted as part of Earth's natural processes. These changes are caused and they themselves facilitate changes in chemical composition of water, industrial use of lands and forests, and changes in biodiversity. These natural changes are inevitable.

Whether the initial forcing mechanism is internal or external, the response of the climate system might be fast (e.g., a sudden cooling due to airborne volcanic ash reflecting sunlight), slow (e.g., thermal expansion of warming ocean water), or a combination (e.g., sudden loss of albedo in the arctic ocean as sea ice melts, followed by more gradual thermal expansion of the water). Therefore, the climate system can respond abruptly, but the full response to forcing mechanisms might not be fully developed for centuries or even longer.

Natural Causes and Human Activity in Climate Change

The Godard Institute for Space Studies (GISS, NASA) claims that "the January-November 2010 surface temperature anomalies are the warmest in their 131 year analysis period" and that "global warming amounts to 0.8°C over the past century, with the largest warming in remote regions including high latitudes". A 0.8°C rise is also reported by the University of East Anglia Climate Research Unit.[1] The UK Met Office reports that "the UK has experienced nine of the 10 warmest years on record since 1990". They admit that global temperature rise virtually stopped during 2000 – 2010, but state that this is not regarded as an end to warming[2].

Ca. 800 mill. of tons of Carbon dioxide are thrown out in the atmosphere daily.

The Intergovernmental Panel on Climate Change (IPCC) of the UN that provides regular reports of the state of knowledge on climate change in its 2007 Report stated: "World temperatures could rise by between 1.1 and 6.4°C during the 21st century".[3]

Solar output

The sun is the predominant source for energy input to the Earth. Both long and short term variations in solar intensity are known to affect global climate. Three to four billion years ago the sun emitted only 70% as much power as it does today. If the atmospheric composition had been the same as today, liquid water should not have existed on Earth. However, there is evidence for the presence of water on the early Earth, leading to what is known as the faint young Sun paradox. Hypothesized solutions to this paradox include a vastly different atmosphere, with much higher concentrations of greenhouse gases than currently exist. Over the following approximately 4 billion years, the energy output of the sun increased and atmospheric composition changed. The Great Oxygenation Event – oxygenation of the atmosphere around 2.4 billion years ago – was the most notable alteration. Over the next five billion years the sun's ultimate death as it becomes a red giant and then a white dwarf will have large effects on climate, with the red giant phase possibly ending any life on Earth that survives until that time.

Solar output also varies on shorter time scales, including the 11-year solar cycle and longer-term modulations. Solar intensity variations are considered to have been influential in triggering the Little Ice Age, and some of the warming observed from 1900 to 1950. Research indicates that solar variability has had effects including the Maunder Minimum from 1645 to 1715 A.D. (when sunspots became exceedingly rare),

part of the Little Ice Age from 1550 to 1850 A.D., which was marked by relative cooling and greater glacier extent than the centuries before and afterward. Some studies point toward solar radiation increases from cyclical sunspot activity affecting global warming, and climate may be influenced by the sum of all effects.

Greenhouse Gases and anthropological warming

The major GHG (Greenhouse Gases) are about 7600 ppm for water vapour, 390 ppm for CO_2, and 1780 ppb for methane (CH_4) (ppm = parts per million by volume, ppb = parts per billion by volume). Ozone and Nitrous Oxide have smaller concentrations. It is claimed that these translate to a greenhouse warming effect of 36-70% for water vapour, 9-26% for CO_2, and 4-9% for CH_4.[4] Note that CH_4 is about eighty times stronger as a greenhouse gas than CO2, but it is present in much smaller concentrations.

Research shows that CO_2 has had a cyclic variation (period approx. 100 000 years). This natural climatic variation may be due in part to the 100 000 year period of the eccentricity of the earth's orbit.[5]

The research shows also that each peak in the cycle levelled at approximately 278 ppm until the industrial revolution around 1800. Since then, the CO_2 level has increased dramatically, reaching 390 ppm in 2010. This recent 40% increase in atmospheric CO_2 appears to be a sudden departure from the natural variation, with the implication that *human activity is responsible for global warming* (called "anthropogenic warming"). Moreover, assuming different levels of human economic development, population growth, and fossil-fuel use, IPCC predictions for atmospheric CO_2 levels lie between 500 ppm and 900 ppm by 2100.

Climate skeptics claim solar irradiance is the main driving force for increasing temperatures, not CO_2. This claim is countered by the UK Met Office: "Changes in solar activity do affect global temperatures, but research shows that, over the last 50 years, increased greenhouse gas concentrations have a much greater effect than changes in the Sun's energy".

The main causes of concentrations of certain greenhouse gases during last 50 years are burning of fossil fuels and deforestation. Certainly, carbon emissions have increased dramatically since 1950. Majority of climate scientists agree with this position and it has been endorsed by more than 50 scientific societies and academies of science.

The UK Met Office states: "It is now clear that man-made greenhouse gases are causing climate change".

The consequences

According to the IPCC view, the *physical* consequences of warming are catastrophic: e.g., increased drought, flooding, and severe storms. Certainly some effects associated with climate change have been observed over the last century:

1. The world warmed by 0.6-0.8°C,
2. Gulf Stream slow-down could plunge the USA and NW Europe into cold and drought,
3. Most glaciers retreated since about 1850,
4. Sea level rose about 7 inches,
5. Water tables fell significantly (China: 1.5m/year, India: 1-3m/year),

6. Malaria has spread to higher altitudes,
7. At least 279 species of plants and animals are moving closer to the poles.

The *social* consequences are summarised in a few key reports:

1. "An Abrupt Climate Change Scenario and Its Implications for United States National Security" (Pentagon Report, 2003) points to possible "catastrophic droughts, famines and riots, with skirmishes over food and water, mass migration and economic disruption. Starvation and disease will decrease population size".[6]
2. "The Stern Review on the Economics of Climate Change" (2006) says "climate change will affect the basic elements of life (water, food production, health and the environment). Hundreds of millions of people could be affected by coastal flooding".[7]

Examples of Recent Severe Weather Events

According to the National Oceanic and Atmospheric Administration (NOAA), 2011 made new weather records. NOAA announced that there were 12 different weather disasters that each cost more than $1 billion at the time of the event (in USA). The previous record was nine in 2008. Such events included blizzards, wildfires and tornadoes. NOAA claims that the US has sustained 134 weather or climate disasters since 1980 where overall damages reached or exceeded $1 billion.[8]

Reuters claim that such extreme weather events are increasing globally, and global reinsurer Munich RE claims that natural disaster losses for the first 9 months of 2011 totalled $310 billion. It is interesting to note that global weather catastrophes appear to track global warming, and that there is an indication that such events reached a peak in the 1990's.[9]

Ecotheology is About Change

Consequently, ecotheology is essentially about change. The change occurs in both nature and human attitude to it. Never before have had human activities influenced an ecosystem of the whole planet Earth.

The question has been put in late 60-ies of the last century when the paradigm-making article was published in 1967 by Lynn White, Jr., Professor of History at the University of California at Los Angeles: "The Historical Roots of Our Ecological Crisis".[10] His statements accused Western worldview and Western Christianity in particular for creating "estrangement and consequently instrumental approach" to natural environment. Having said that Western "Western Christianity made it possible to exploit nature in a mood of indifference to the feelings of natural objects," White goes on to describe differences between the Western and Eastern Christian worldviews. Quoting well-known nature researchers White argues that exploitation of nature is rooted in development of Western rationalism, technicism since 13th century in Europe when "the rainbow was no longer simply a symbol of hope first sent to Noah after the Deluge. Robert Grosseteste, Friar Roger Bacon, and Theodoric of Freiberg produced startlingly sophisticated work on the optics of the rainbow [..]" Science coupled with technologies "gave mankind powers which, to judge by many of the ecologic effects, are out of control."

When the worldview created partially by the Western Christianity was criticized for being responsible for causing ecological crisis, Christians reacted by creating publications dealing with previously nonessential issues. In the pre-industrial era when manufacturing didn't cause threats to nature there was no need for such publications. Now it seems more and more that ecotheology is among the most important aspects of applied theology touching fundamental issues of worldview, religion and human attitude to nature.[11]

Oikos – in Greek means "house, household", and the root word is used in both "economy" and "ecology". Both words in English (as in any other language) deal with proper maintenance, care and management of resources. Further, *ecotheology* is a term which consists of two more root words, *theos* and *logos*, i.e., theology which speaks about the concept of God attuned to their spiritual and physical living, and making people accountable for their attitude towards nature. Here is the second change we are dealing with in this project: ecotheology is about man's authority over nature as delegated by the Creator. Is he called to responsibility or sheer dominance, cooperation and care (stewardship) rather than hierarchy? Ecotheology rises as an answer of theologians and Church leaders to criticism of the traditional Western theology as caring for personal salvation regardless of its social/ environmental responsibility, offering one-sided interpretation of related biblical texts (particularly from Gen. 1-2).

West *versus* East

Western worldview according to White comprises estrangement from natural environment and consequently "instrumental" use of it. And this is where the Western Christian approach to nature differs from that of the Eastern Orthodox view:

"The key to the contrast may perhaps be found in a difference in the tonality of piety and thought which students of comparative theology find between the Greek and the Latin Churches. The Greeks believed that sin was intellectual blindness, and that salvation was found in illumination, orthodoxy – that is, clear thinking. The Latins, on the other hand, felt that sin was moral evil, and that salvation was to be found in right conduct. Eastern theology has been intellectualist. Western theology has been voluntarist. The Greek saint contemplates; the Western saint acts." And the conclusion is obvious: implications of Christianity for the conquest of nature would emerge more easily in the Western atmosphere.

Spokesman of the Orthodox view John Chrysavgis[12] agrees with the view of White about the Western Christianity: "We [in the West] have disestablished a continuity between ourselves and the outside, with no possibility for intimate communion and mutual enhancement." Actually the [Western] emphasis on "autism with regard to the natural cosmos" is his starting point before he enters detailed view of Eastern Orthodoxy on the created nature. He states that the Eastern view is best presented by iconography – not only as art, but as *reality saturated with Divine energies*, represented beyond suffering, solitude, and hell, an image that will never die. Whereas Western approach is characterized as technical and instrumental, the Eastern Orthodox approach offers "inner vision of the world", and Orthodox iconography "seeks to discover and then to disclose the reality of the experience of the heavenly kingdom in this world." More than that – "the icon articulates with theological conviction the faith in this kingdom and its activity in the earthly realm [..] The icon constitutes the epiphany of God in the world. [..] The God who created out of love, who was incarnated out of love, now saturates the whole world with divine energies." Nature was seen as *icon* of Creator.

That position is represented by the view of nature, created world as a symbol of God's omnipresence, love and resurrection. Whole Eastern Orthodox icon art is saturated with this spiritual meaning.

These statements are essential for the current project. They pave the way for further research in how natural objects are used as "symbols". By this opposition of the West and East we have two strata of the use of symbols. The first one carries on the ancient tradition (East); the second – upper one (West) – may be a provocative quote aimed at the conscience of modern man: it's a quest, provocation, rebuke etc. The current project deals with use of those symbols and tries to explain changes in their use. White ascribes "nature as symbolic system through which God speaks to men" to the early Church (e.g., the Early Church fathers say that the ant is a sermon to sluggards; rising flames are the symbol of the soul's aspiration, etc.). In that world the view of nature was essentially "artistic"; and "science as we [in the West] conceive it could scarcely flourish in such an ambience". This quote explains why Eastern Orthodox Christians' approach to global threats to ecology differs from that of Western environmentalists. It is based on "inward" vision of fundamental relationship between God, humans and creation; particularly on general understanding of man as *Image of God* and nature as *icon* of God. This direction is strongly presented in this volume.

By no means Eastern Orthodoxy does deny activism, but rather gives preference to the change worldview prior to outward activism. The document "Bases of the Social Concept of the Russian Orthodox Church" clearly states the priority by saying the following: "**It is impossible to overcome the ecological crisis in the situation of a spiritual crisis**." This does not mean that the Church calls to curtail the preservation activity, but in her hope for a positive change in the man-nature relationships, she relies rather on society's aspiration for spiritual revival. The anthropogenic background of ecological problems shows that we tend to change the world around us in accordance with our own inner world; therefore, the transformation of nature should begin with the transformation of the soul. According to St. Maximus the Confessor, man can turn the earth into paradise only if he carried paradise in himself" (*see* Apendix no.3).[13]

This shift of focus point doesn't seem important to many. For example, Latvia internationally is usually presented as an ecologically "green" country in Europe but with few or no threats caused by typical enemies of nature: heavy industry, pesticides and population. Ironically the current economical situation in Latvia is reducing the threat![14] With the former Soviet industry long gone and the country now standing still before another wave of industrial development has relative "peace" – which makes people feel ecologically safe and careless. Authorities and business people are asking for more industries, for more active use of the land, deforestation, fishing in the Baltic Sea etc. in the name of faster economic development of the country. Although "ecotheology" has been recognized as "reaction of the Church to severe criticism for being passive, laid-back and, above all, responsible for creating an irresponsible worldview" already since late 1960-ies, it is still difficult to convince the audience to accept that shift in theology. Students argue that it is a "liberal[15] approach to theology", because the "true Kingdom of God is up there" (with finger pointing upwards), or they say they never heard about the term before (in April 2012). This is why environmental activism is more assertive than reflections in ecotheology.

Nature, Climate Situation and God of the Bible

Much scholarly attention focuses on certain biblical concepts that speak of having dominion, to subdue; and the ideal relationship of humanity to nature, and on the corresponding interpretive issues that reappear again and again in theological and philosophical thought.

Separation, hostility, punishment and pain

As the crowning point of Creation, God creates male and female in "His" image. It is in Genesis 1:28 that the crucial verbs "to subdue" and "to have dominion" are found: "Be fruitful and multiply and fill the earth and *subdue* it: and *have dominion* over the fish of the sea and the birds of the air and over every living thing that moves upon the earth." Hebrew words used here are *kābaš* "to treat down", "to disregard", "to subjugate", "to violate"; and *rādāh* "to have dominion", "to prevail against", "to rule", etc. Usually these words in the Old Testament are used to describe rough power and authority when speaking about enslaving of pagan nations etc. The attitude towards nature is described by use of militant terms. For many scholars, the term "dominion over all the earth" sums up the Western religious roots of a destructive, anti-ecological, world-view that, as White Lynn (*see* ref. no. 10) charged, "insisted that it is God's will that man exploit nature for his proper ends."

In the third chapter of the Bible, which contains the curse (Gen. 3: 14-19) that accompanies the expulsion from the Garden, this thesis is developed: after the Fall the land may be hostile and humans will struggle to obtain food. Women and animals are *separated and set against each other*, and the very physical nature of women presented in the birthing/creation of life will include *punishment and pain*.

Stewardship

In response to such charges, many scholars and religious ecologists point out that dominion is more accurately interpreted as *stewardship*, or the caring and keeping of the earth, because it is the Lord's[16]. They see the text in *covenantal terms*: humans are to till and keep the land responsibly in return for God's blessing enabling them to be fruitful and multiply. Ecotheologists make reference to the text from Gen. 2:15 describing the role of humans in the natural environment (Garden of Eden): The Lord God took the man and put him in the Garden of Eden *to till* and *keep it*". Hebrew verbs *ābad* means "to serve", "to labour", "to dress"; and *šāmar* "to hedge about", "to keep", "to preserve". These two words contain God's commandment in regards to proper attitude to natural environment before the fall of man[17].

In this same vein, many point out that this stewardship theme runs throughout the Hebrew Scriptures, and is explicit in the numerous commandments regarding agricultural and dietary laws in the care both for the land and for animals[18]. Ecologically oriented scholars go on to find much merit in the "land ethic" of the Hebrew Scriptures and the idea of a Sabbath for all, animals and the land included.

Weather changes and God

Description of weather situation and weather changes in the Bible has attracted theologians for centuries.[19] In vast literature one can find enough texts to make satisfactory information about main trends of research.

The Bible itself was written, let us say, some 3 000 years ago (at least parts of the Old Testament), yet much of the Bible goes back 3 500 years ago and it describes conditions far earlier than that. The weather has been fundamental in the understanding of the Scripture and how God deals with mankind.

First of all it seems obvious that between weather situation and human activity there is "direct link", e.g., prophets Jeremiah and Isaiah speak about the sin as a cause to turn the world against its natural development of creation (*see* Jer. 18; Is. 25). Isaiah speaks about the world as a parchment scroll which will cease because of natural cataclysms and before second coming of Christ (*see* Is. 34: 4; 49f).

a. Darkness and Gloom

When Pharaoh refused to allow the Israelites to leave Egypt, God instructed Moses to "stretch out his hand toward the sky, that there may be darkness over the land – a darkness that could be felt" (Ex. 10:21). This resulted in "thick darkness in all the land of Egypt for three days".

Again, when Ezekiel was in exile in Babylon he challenged Israel to turn from their wicked ways, but he also spoke to the surrounding nations like Assyria and Egypt. He warned Egypt of God's coming judgement, when clouds and darkness would be used as a way of arresting their attention. We read that "It will be a day of clouds, a time of doom for the nation [..] all the shining lights in heaven I will darken over you and will set darkness on your land" (Ezek. 30:3; 32:8).

b. Drought

As the Israelites wandered in the wilderness on their way to the Promised Land, God gave them the Ten Commandments, together with many laws. He warned Israel to obey them and if they did not then one of the consequences would be drought; "the sky would be like bronze and the earth like iron" (Deut. 28: 23-24).

c. Violent Storms, Floods and Hail

When the kings of the Amorites attacked friends of Israel, Joshua's army went up to defend them. It is recorded that God helped Israel by throwing large hailstones at the enemy: " [..] more died from the hailstones than those killed by the sons of Israel [..]" (Josh. 10:11).

Later, the prophet Ezekiel challenged the false prophets of Israel, saying that God would judge them. The Lord spoke to these false prophets through Ezekiel, saying:

"I will make a violent wind break out in My wrath [..] flooding rain and hailstones [..]" (Ezek. 13:13).

When Jonah tried to ignore God's instructions by taking a boat trip, God sent "a great wind and storm" (Jon. 1:4) that threatened to destroy the ship. Then, in New Testament times, God reversed the situation and calmed the wind and sea in order to save the disciples:

"Jesus rebuked the wind and sea [..] and the wind died down and it became perfectly calm" (Mk. 4:39).

From these few examples we are convinced that, in the past, God has used abrupt weather changes (not long-term climate changes) to arrest man's attention. What about future?

d. Weather changes before the Second Coming of Christ

The Bible makes it quite clear that there will be a definite end to life as we know it. Earth's governmental systems, economic and trading systems, animal kingdom, and even geology will all be changed at the Second coming of Christ. Our current age is coming to a dramatic end as God deals with rebellious nations. During a brief period at the end of this age God will exact a series of judgements on the nations, and this includes changes to earth's weather! These are more likely to be severe „weather events" rather than long-term "climate changes" simply because of the relatively short prophetic timescale involved.

The book of Isaiah, ch. 24:27, sometimes called "Isaiah's Apocalypse", describe God's judgement upon the entire world for its sin. They also correlate well with judgements on the earth described in Revelation.

One of the judgements predicted by Isaiah appears to be drought: "The earth will be completely laid waste [..] the earth mourns and withers, the world fades and withers [..]" (Is. 24: 3-4).

Drought is one of the consequences of disobedience (Deut. 28: 23-24; Zech. 14:17). Another form of judgement prophesied by Isaiah appears to be *extreme* heat – heat severe enough to kill people: "Therefore [..] the inhabitants of the earth are burned, and few men are left" (Is. 24:6).

The book of Revelation speaks of the same end time events and predicts extreme weather as part of God's judgement upon the nations. There will be fierce, scorching heat: "The fourth angel poured out his bowl upon the sun, and it was given to it to scorch men with fire. Men were scorched with fierce heat [..]" (Rev. 16: 8-9).

When questioned about the end of the age, Jesus hints at wild weather: "There will be [..] dismay among nations, in perplexity at the roaring of the sea and the waves" (Lk. 21:25). The root meaning of the Greek in this verse can mean nothing else but literal sea and literal waves. The word "roaring" comes from the Greek echeo meaning "to make a loud noise". Hurricanes and coastal flooding spring to mind.

Then there's the future Gog-Magog War. At some point in the future, Iran, together with other nations, will invade Israel from the north (Ezek. 38). Just as God intervened to release Israel from the grips of Pharaoh, so He will intervene to protect Israel from the invading armies. As with Joshua (see above), the weather plays an important part in their defeat, with torrential rain and hail (Ezek. 38:22).

Hail features high on the weather ingredients list at the end of the age. It is part of God's judgement upon the nations. Besides fierce heat there will be extreme hail and snow storms (Job 38: 22-23; Rev. 16: 8-9, 21): "Or have you entered the storehouses of the snow [..] which I have reserved for the time of distress [..]" (Job 38: 22-23). "[..] and huge hailstones, about one hundred pounds each, came down from heaven upon men [..]" (Rev. 16:21).

Clearly, God intends to use short-term weather changes to influence world affairs in the future. Since there is clear Biblical support for God's control of past and future weather, it is logical to ask, "Is God speaking through climate change or severe weather events in today's world?" How close are we to these future events?

Consequently the biblical evidence considers climate changes as part of God's end-time scenario – it is God who is controlling the climate. From the Bible we can say with certainty that:

1. God has used the weather to influence nations and individuals in the past;
2. Bible prophecy says that God will use severe weather events to 'speak' to the nations at the end of this age;
3. Prophetic signs and the state of the world suggest the end of this age is immanent.

If we are indeed close to the end of this age, then dramatic weather events seem immanent. God will soon use severe weather events to speak to, and judge, the nations. Clearly, it is a very effective tool to arrest the world's attention.

Meaning Assigned to Natural Phenomena: Rainbow Case

Whereas plants and animals have to adapt to changing environmental conditions, people on the opposite are active rather than passive in what they do, and their activities are rooted in conceptualization. In regards to fundamental orientation of human activities we know that it is apostatic: it turns away from both God the Creator and from creation people originally belong to.

Thus triangle of mutual relationships is created: God the Creator – nature or "created world" – people. After the Fall it is not a triangle of "positive cooperation" any more, rather it is triangle of separation. Obviously where there are relationships of mistrust, unresponsiveness and enmity, there is a place of authoritarianism on the one hand and subjugation on the other.

Examples given above demonstrate that God of the Bible can use "nature" against humans. From that moment on phenomena of nature (i.e., weather changes) – become symbols of God's presence, punishment or blessing. God speaks through those phenomena and one should have "eyes" to read the message behind them. Important function of biblical prophets among others is to read those phenomena, to explain them to people. Also Christ reminded people to "read signs of time": although the reminder teaches to „understand" times they belong to, the context is clear – particular signs are given for people to understand closeness of the Second coming of Christ. People know how to predict weather conditions but are reluctant to read the book of nature as a symbol of God's attitude socially, politically and spiritually.

There is a symbol in the book of Genesis which shows the "nature" and "times" melted together. It is a well-known story about Noah's flood and subsequent Covenant between God and all living beings on Earth after the flood (Gen., ch. 6-9). The visible sign of the covenant – rainbow – has been put above the Earth after the previous age, highly unpleasant for living due to apostasy was over.

Trying to reconstruct the sequence of events after the fall and Noah's flood the following picture has been suggested: "The earth itself seems to have been surrounded before the creation of Adam by some kind of an opaque cloud over cover that once in a while would break open and the sun shine down. Yet there was an extensive amount of water vapor in the atmosphere, much more than we have today. Clearly this is the case because this condition lasted for around 1 650 years until the flood of Noah, according to the Hebrew chronology of the Bible.

Then all of a sudden the waters from the great deep began to come up, but it also says the waters from the sky began to come down in sheets, in rain that lasted for 40 days and nights. This must mean that in those 1 650 years before the flood, great quantities of water were suspended in the atmosphere. This may have caused the earth to have a kind of greenhouse effect.

The history of the earth before the flood shows that even though men may have lived 900 some odd years, they were in trouble during those times. The earth did not yield its seed at the proper times. There was no regularity of winter and summer. In some cases even day and night had irregular periods.

What is shown is that the earth itself was under a curse that lasted until the time of Noah (according to Gen. 3:17)."

Of course, the particular sequence of natural circumstances can be discussed as they are hypothetical. The rainbow was given on the threshold of the new era, that of the covenant. The threshold separates the cursed world and future regime of relationships between God and humans. God promises regularity: "While the earth remains, seedtime and harvest, cold and heat, summer and winter, day and night shall not cease' (Gen. 8:22)." The visible sign (rainbow) becomes a symbol of the one-sided determination of God to secure regular and predictable natural prognosis which are better than those before the covenant. Thus the visible sign becomes a symbol for the message that God promises to secure further existence of people. And the promise will stay there until the end of times – whenever people see rainbow, they remember God's promise in awe and reverence.

In similar manner the line was drawn between the fallen man and entrance to Eden when cherubim with flaming swords closed gates to the former condition. Adam and Eve were driven out from Eden "which turned every way, to guard the way to the Tree of Life" (Gen. 3:24). One can imagine the closed entrance as flaming sunset by the far-away horizon – the Sun disc in the color of blood seemingly seals the world rejected by man's own foolishness.

Signs of the climate (or weather) condition have clearly stated function: they mark the border between two different regimes in relationships between God and humans. This function is supplemented with another one, namely, to serve as reminder in future. Although these two worlds – that of humans and that of God – are separated from each other, majestic natural phenomena still remind us about their essential connectivity. Ominous, threatening flames of sunset which remind about the committed sin and apostasy – and gorgeous beauty of the rainbow which reminds us of the sovereign and immeasurable mercy of God – are well recorded in human consciousness.

Discussion about Human Capacity to Change the God's Promise

The story about Noah's flood and the sign of the first covenant belong to the so-called prehistoric cycle of the Old Testament (before Patriarchs), i.e., the event doesn't have precise dating (although several suggestions have been made in literature). The text sketches fundamental issues in relationships between God and humans before the call of Abraham. Fundamental issues contain sustainable, long-lasting laws which have not been abolished by God: "While the earth remains, seedtime and harvest, cold and heat, summer and winter, day and night shall not cease" (Gen. 8:22).

In other words, the natural cycle of things was promised to continue, and nothing special was meant to happen to the climate whilst man is around. Of course, man may well be upsetting what God had planned. But man is not able to cancel what God has promised to keep.

There should be no surprise that some ultra conservative Christians discuss the climate change and global warming issue as a "conspiracy" because men are not

authorized to change the God's law. US Senator James Inhofe supports that view, and he argues that vast sums of money assigned to climate change issues are spent in vain.[20]

Use of Symbols

So there are certain natural phenomena to which we have ascribed particular meanings. These phenomena are well known to every student of myths and religions, and they symbolize the presence of God in human life. Biblical symbols are well known to Christian civilization; some of those symbols are widespread and are not linked to some narrow cultural tradition, although their meanings sometimes may differ in particular cultures (rainbow, rain, fire, etc.). For ages these symbols have been looked upon as stable as the whole world we live in, and this is where the term "tradition" comes from. We can even say that stability of symbolic meanings is one of those three whales on whom the world rests.

When speaking about rainbow as a "sign" from God which confirms that from now on humans will have better, i.e., predictable weather conditions, Hebrew Bible uses the word *ot*, meaning "outward expression of will or conviction", "outwardly visible proof", "signal". Sometimes the word is translated as "sign", "wonder", or "flag". The Septuagint uses *sēmeiōn* "proof", "expression", etc. Both Hebrew and Greek words point to a close connection between the inner content and outward expression (with a single remark: the inner content always stays incomprehensible for humans, it is self-contained and mysterious since mind of God is above and beyond human capacity to grasp it). However, this inner content is somehow made known by visible signs. The rainbow is given for people to see and to contemplate God's mercy, even more than that – the text emphasizes that the rainbow will serve as reminder to God Himself about His promise (Gen. 9:16). Symbolic meaning of the sign is made active by reception and knowing it.

This observation is very important for the current project. We are interested in:

1. what meaning has been assigned to the sign which makes it a symbol,
2. when and why these previously assigned meanings may change. "Iconography is important [..] when one considers entities which in themselves remain unchanged, such as the sun, moon, storms, earth, and trees. We assume far too easily that these phenomena held the same meaning for the Ancient Near East as they do for us.[21]

It seems obvious when speaking about symbolic meanings ascribed to the sun, moon and the stars – rather stable heavenly bodies, but further questions arise once we start talking about fast changing issues like weather. It seems clear that nothing is "the same" as it used to be from creation when "God saw it was good". One may wonder – will heavenly bodies stay forever? And what about natural phenomena – wind, storm, fauna and flora at some particular spot on earth? They change, as climate does. Why do they change, and what does the wind bring to us?... We can't help but see changing characteristics of those phenomena, and their meaning for humans is also changing along with them.

In the changed situation after the World War II the natural environment experienced the threat of human activity. Whereas ancient symbols reminded about the designed unity and cooperation of God the Creator, nature and humans, interpretation and use of symbols started to change as well. Traditional meanings of symbols have

been questioned and they were more and more assigned to social and environmental activism. New meanings have been attributed with social goal: will the world stay where it has been since creation? Look, acid rain doesn't show signs of God's mercy and blessing, rather it kills and poisons and one should run away from it!

While the rise and development of ecotheology is a global challenge, the artists' response to the ecology threat became more local and it varies from country to country. The artist's approach and style of expression becomes more bitter and sharp in countries with a heavy industrial and ecological threat set against the beauty of nature (e.g., in Norway). In countries, such as Latvia, with a lesser industrial and ecological threat, the artists' conception is more romantic and inwardly focused. Perhaps there is more space for "Eastern Orthodox" (i.e., inwardly meditative) approach to symbols.

The point has been made clear: climate change causes distortions in human perception. Within the frame of the current NORDPLUS project we focus on how traditional symbols – or, to put it more precisely, how the well-known natural phenomena with traditionally assigned meanings are changing their functions in minds of people today? Obviously since Climate change is an issue relatively recent and aggressive we are facing new ways in which traditionally accepted symbols of mediation between nature and humans are used.

The above mentioned thesis is illustrated by examples from modern ecologically minded art. *The sign which has been established as traditionally accepted symbol is used to mean the right opposite concept*. Examples are abundant; also current project shows that tendency. Perhaps it can happen by accident when traditional meaning is lost or unknown to the artist (seldom), or because artist wanted to provoke the reader, viewer, user of the artwork by invocation of more acute reaction (often). It is well-known that the use of traditional symbols in some unexpected context is one of those popular methods in post-modern art; in ecologically minded art such provocation may serve a clearly stated purpose to attract attention rather than simply to destroy traditional meaning. For example, painting by a student of Latvian Christian Academy shows Noah and his animals watching how his ark is entered by... cars, electronic devices, etc.! Noah and his flock is standing nearby humiliated, and finds no place on the boat.

Another example shows vastness of the sea at sunset ("Sunset" by L. Dinere). Above the dangerous water there is a sail-boat, perhaps Noah's ark. However, the viewer's attention is focused on a flying fish, desperately jumping out from the deep in order to find refuge in the... boat! The message is clear in both paintings: natural environment is substituted by artificial one. Natural environment becomes hostile for animals to live in and they seek abnormal ways to escape – like seals and whales, sometimes found taking flight on the seashore sands rather than in water.

Going further, sometimes objects with well-established symbolical meaning in traditional iconography are used to describe very personal feelings and ideas. In this case modern art risks becoming unintelligible for general viewer without special education (or, rather, unction). Interpretation of symbols is characterized by dialogical form: the meaning of a symbol exists solely inside communication of people without which there is only an empty form. This dialogue which makes interpretation of the symbol possible can break apart if the viewer or interpreter stands in an estranged position. However, if the goal of the artist is to provoke, this estrangement from tradition is done by purpose. The goal of the artist is to create shock, to urge the change of a mindset. The purpose is clear in this case: what has been thought of as stable

and unchanged for centuries, is endangered by human activity in the industrial era. However, if objects with well-established symbolical meaning in traditional iconography are used to describe very personal feelings and ideas, the word "estranged" perhaps should be replaced with "position inadequate to artist's concept". This tendency shows how the world inevitably breaks apart and losses its inherent unity and wholeness when civilized world of humans is estranged from natural environment.

Finally, there are cases when popular animals, birds, plants are used in the nation branding. Elevated in this capacity they (1) represent national fauna and flora and (2) secure special protection to them.

Here is the list of national symbols, country by country (participating in the current project, from North to South). Even brief introduction to them makes clear that they are chosen because of two key features: being widespread (and therefore well-known) and because they must be protected. Along with those two key features national symbols may have strong political engagement (e.g., Estonian blue cornflower, Lithuanian wolf, etc.). This use of otherwise "neutral" symbols shows another key feature, namely, they are possibly strongest visible pictures of connection between the nation and its land. The country is represented not by arts and crafts, but its nature.

Norway: *the elk (moose), purple heather being and dipper. They give an emphasis to the unique characteristic attached to being an independent nation.*

Finland: *the bear, swan, perch, birch, lily-of-the-valley and granite. These symbols have powerful connotations for Finns from ancient times. In olden days, people didn't dare say the name of the bear, the king of the Finnish forest, so they called him names like Otso, Kontio, and Honey-Paw. The swan has strong symbolic value, signifying grace and purity. Birch and lily-of-the-valley are used as decorations on festive occasions such as midsummer. Granite is traditionally used in Finland for construction and sculpture.*

Estonia: *blue cornflower and the barn swallow, the Baltic herring and the gray limestone. The cornflower grows commonly in rye fields, creating a strong connection in the minds of Estonians between the flower and their daily bread. The blossoms of the cornflower have a particularly striking graphic appearance which has led to its use by artists for decorative purposes. It was chosen as the national flower in 1968 also for another important reason. People knew that the blue of the then forbidden Estonian flag was defined as "cornflower blue". The Soviet authorities, in a move that is nowadays quite difficult to believe, responded by banning representations of the cornflower. The barn swallow is a characteristic guest of Estonian homes. Its call can be heard from practically every eave or barn rafter in the country. If the bird finds a suitable opening, under the ridge of a roof or a broken window, it will build its cup-shaped nest; it will even build it inside a house. Estonian national stone is the country's valuable grey limestone. Most castles, churches, farm buildings, and countless stone fences are made of limestone.*

Latvia: *the white wagtail, the two-spotted ladybird, daisy, the oak and linden, and amber. White wagtail, a tireless, highly energetic bird is frequently mentioned as a symbol of hard work and industriousness. The ladybird's Latvian name "mārīte" is derived from the name of the supreme Latvian goddess Māra, ("earth mother") responsible for the fertility of the land. The two-spotted ladybird moves slowly and diligently, but is excellent at defending itself. The Latvian national flower daisy blossoms in June, just in time to be woven into festive wreaths for the Midsummer fes-*

tivities, and it continues to bloom until September, providing Latvian flower lovers, decorators and celebrants with their most popular accent for floral gifts and arrangements throughout the summer. The oak and linden are male and female figures in Latvian folklore; they are characteristic of the Latvian landscape and figure prominently in the practical and spiritual lives of ancient Latvians. Both trees have traditionally been used for medical purposes. Amber has always been an essential part of the Latvian cultural identity. In ancient times the amber found along Latvia's Baltic Sea coast was considered 'good as gold' and was sought by Vikings as well as traders as far away as Egypt, Greece and the Roman Empire. This led to the development of the Amber Road between Latvia and the Black Sea. And finally, Latvians have their River of Destiny – The Daugava. In addition to its strategic role as a major transport artery since times immemorial, the Daugava was an essential means of livelihood for Latvia's inhabitants. In recent times it has become the site of Latvia's hydroelectric power stations and a major source of energy. The river's fateful role throughout Latvia's history has made it a treasured subject of song, poetry and stories.

Lithuania: *White stork, common cuckoo, aurochs, elk, wolf, and bear. Lithuanians (along with Latvians) believe that storks bring harmony to the families on whose property they nest; they keep up the tradition of telling their children that storks bring babies. Stork Day is celebrated on March 25 with various archaic rituals: gifts for children, attributed to the storks, snakes are caught, killed and buried under the doorstep, and straw fires are lit. Notably, Lithuania is a beneficial and important habitat for these birds: it has the highest known nesting density in the world. Common cuckoo is said to sweep away the last traces of winter, and the month of May (Gegužės mėnuo) is named for this bird. According to a popular legend, an iron wolf in Gediminas' dream encouraged the Grand Duke to establish Vilnius and make the city his capital. Lithuanian national plant is rue: a bride traditionally wears a little crown made of rue, which is a symbol of maidenhood. Trees of special significance include oak, birch, linden, and spruce. A veneration of them comes from pagan times, when they were of religious significance, and the significance of trees is reflected in the Lithuanian calendar (June is, in Lithuanian, "birch" (Birželio mėnuo), and July is "linden" (Liepos mėnuo).*

REFERENCES

1 Data available from Climatic Research Unit (School of Environmental Sciences University of East Anglia) [online] [cited 23/05/2012]: http://www.cru.uea.ac.uk/cru/data

2 Available at MetOffice [online] [cited 23/05/2012]: http://www.metoffice.gov.uk/

3 *See* Assessment reports at Intergovernmental Panel on Climate Change [online]: http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#.T83SLcX7OaQ

4 *See* data at: http://en.wikipedia.org/wiki/Greenhouse_gas

5 According to Milutin Milankovitch, available at NASA Earth Observatory [online]: http://earthobservatory.nasa.gov/Features/Milankovitch/

6 *An Abrupt Climate Change Scenario and Its Implications for United States National Security*. (2003) Peter Schwartz & Doug Randall. Washington, DC: Climate Institute. Available: http://www.climate.org/PDF/clim_change_scenario.pdf

7 *Stern Review on the Economics of Climate Change*. (2006) Available at HM Treasury, London: http://www.hm-treasury.gov.uk/d/Executive_Summary.pdf; summary available at: http://en.wikipedia.org/wiki/Stern_Review/

8 Data available at the webpage of NOAA [online]: http://www.research.noaa.gov/climate/

9 *See* online: 'Climate Change' in *A Thomson Reuters Foundation Service "AlertNet"*: http://www.trust.org/alertnet/climate-change/

10 *See* White Lynn. (1974) The historical roots of our ecologic crisis [with discussion of St Francis; reprint, 1967]. In: *Ecology and religion in history*. New York: Harper and Row, 1974. Available: http://www.uvm.edu/~gflomenh/ENV-NGO-PA395/articles/Lynn-White.pdf.

11 "This book surveys traditional religious perspectives on nature, and shows *how contemporary theologians, spiritual teachers, and religious institutions are responding to humanity's devastation of the environment*," says editor Roger S. Gottlieb in his Preface to the paradigm-making volume comprising essays by major religious leaders – *This Sacred Earth: Religion, Nature, Environment* (1996)/ Gottlieb R. S. (ed.). London: Routledge, p. XI.

12 Chrysavgis J. (2000) The World of the Icon and Creation: An Orthodox Perspective on Ecology and Pneumatology. In: *Christianity and Ecology: Seeking in the Well-Being of Earth and Humans*/ Hessel D. T., Ruether R. R. (eds.) Harvard University Center for the Study of World Religions, pp. 83-96.

13 *Basic principles of the Social Concept of the Russian Orthodox Church, XIII: 5* (2000) [online]. Russian Orthodox Church. The official webpage of the Department for external Church relations. Available: http://www.mospat.ru/en/documents/social-concepts/

14 E.g., an article by Mārtiņš Bitāns, economist of the Bank of Latvia "*Lost decade in Latvian economy – what it is and what does it mean for our welfare?*" (in Latvian) [online] [cited on 24/04/2012]. Available: http://www.makroekonomika.lv/zaudeta-desmitgade-latvijas-ekonomika-kas-ta-tada-un-ko-ta-nozime-musu-katra-labklajibai/

15 In this context meaning – "ungodly"; set against conservative.

16 *See* DeWitt C. B. (1987) *A Sustainable Earth: Religion and Ecology in the Western Hemisphere*. Mancelona, MI: AuSable Institute; Granberg-Michaelson W. (ed.) (1987) *Tending the Garden: Essays on the Gospel and the Earth*. Grand Rapids, MI: W. B. Eerdman's Publishing House; Hessel D. T. (ed.) (1992) *After Nature's Revolt: Eco-Justice and Theology*. Minneapolis, MN: Fortress Press.

17 *See* Kearns Laurel. The Context *of Eco-theology (Ch. 29.). In:* The Blackwell Companion to Modern Theology/ Ed. by G. Jones. London: Blackwell Publishing, 2003, pp. 467-468. (465-484).

18 *See* Brueggemann W. (1977) *The Land. Place as Gift. Promise, and Challenge in Biblical Faith*. Philadelphia, PA: Fortress Press.

19 Neda Ulaby. Scientists Examine Climate Change. In *Bible Tales* [online]. Available: http://www.npr.org/templates/story/story.php?storyId=15713257; referring to Dr. Michael Gills from UCLA and his studies of the flooding of Nile and Exodus stories about "seven fat cows and seven lean cows (i.e., years)", as well as his research of Noah's flood (2001) (*see* Dr. Stephen L. Cook (2007) [online]. The Bible and

Climate Change on Today's "All Things Considered". In: *NPR, Sunday, October 28, 2007.* Available: http://biblische.blogspot.com/2007/10/bible-and-climate-change-on-todays-all.html); for climate change facts in the Bible and research in climatology *see*: http://www.seekingtruth.co.uk/weather.htm; www.askelm.com/prophecy/p050701.htm; http://www.seekingtruth.co.uk/climate_change.htm

20 *See* Inhofe Says Bible Refutes Climate Change (March 09, 2012). In: *Taegan Goddard's Political Wire* [online]. Available: http://politicalwire.com/archives/2012/03/09/inhofe_says_bible_refutes_climate_change.html/; also *see* Steve Benen. Inhofe refutes Climate Science with Scripture (March 9, 2012). In: *The Maddow Blog* [online]. Available: http://maddowblog.msnbc.msn.com/_news/2012/03/09/10623040-inhofe-refutes-climate-science-with-scripture?lite/

21 Keel O. (1997) *The Symbolism of the Biblical World: Ancient Near Eastern Iconography and the Book of Psalms.* Winona Lake, Indiana: Eisenbrauns, p. 8.

Trīs vaļi, uz kuriem balstās pasaule: Dievs, radība un simboli

Kopsavilkums

Rakstā iztirzāta virkne jautājumu, ar kuriem strādā šis NORDPLUS projekts – klimata simbolu interpretāciju uz vides izmaiņu fona. Sniegti fakti, kas ilustrē globālo sasilšanu cilvēka darbības ietekmē. Tiek dots īss ieskats ekoteoloģijas izveidē, atsaucoties uz rietumu kristietībai adresēto kritiku, kas ir daļēji atbildīga pie dabas degradācijas. Austrumu pareizticīgās kristietības antropoloģiskie resursi rakstā ieskicēti ar Krievijas Pareizticīgās Baznīcas Sociālās mācības tēzēm. Balstoties uz Genesis grāmatas tekstu lingvistisko analīzi, norādīta atšķirība starp dabas „pakļaušanu" un „rūpēm par to". Mijiedarbība starp cilvēku un dabas vidi notiek ar simbolu starpniecību, un pārmaiņas dabiskajā vidē izraisa sekojošas nobīdes gan šo simbolu interpretācijā, gan lietošanā. Tradicionālie simboli tiek daudzveidīgi lietoti reliģijā, mākslā un ikdienas komunikācijā. Rakstā analizēti ar vides aizsardzību saistīti mākslas darbi.

Atslēgas vārdi: ekoteoloģija, globālā sasilšana, cilvēka iedarbība, Bībeles interpretācija, pakļaušana, rūpes, simboli (to lietojums)

Mag. theol., assist. prof. **Guntis Dišlers**

Assistant professor at European Christian Academy; Latvian Social Dialogue Education Centre

Address: 5. līnija 3, Jūrmala, LV-2010, Latvia

Phone: +371 67753360; +371 22008895 (cell)

E-mail: biblioteka@kra.lv

Ecology of the Baltic Sea and the Possible Impact of Climate Fluctuations

Baltijas jūras ekoloģija un klimata svārstību iespējamā ietekme

Anda Ikauniece, Dr. biol. (Latvia)

Article is divided in two parts. First part focuses on general description of the Baltic Sea – describing the environment of the sea as well as characterizing the living organisms living in the sea. Second part of the article, in turn, deals with most relevant environmental problems and the impacts of possible climate change. This depiction provides the basic knowledge on the non-living and living compounds of the aquatic environment of the Baltic Sea. One can always learn more on the different issues related to the marine world.

Key words: Baltic Sea (ecology of), aquatic environment, living organisms, plankton, algea, bacterias, benthos, marine mammals, climate change impacts

1. The general description of the Baltic Sea

Environmental Characteristics

The Baltic Sea is an enclosed inland sea located at the Northeastern part of Europe with a narrow and shallow connection via Danish Straits to the North Sea. It consists of several sub-basins the largest of them being the Baltic Proper, Bothnian Sea and Bothnian Bay (called also the Gulf of Bothnia). The largest gulfs in the Baltic Sea are the Bothnian Bay, Gulf of Finland and Gulf of Riga (*see* Figure 1). The sub-basins are separated from each other by shallow sills or straits.

If the Baltic Sea is compared to its closest neighbor – the North Sea – then, for example, its volume is 21 631 km³ and approximately half of the North Sea's volume. Also the average depth of the Baltic Sea is almost two times smaller than of the North Sea – 52 m and 94 m, respectively. In the terms of the World Ocean the Baltic Sea is really a shallow sea as its maximal depth does not reach even 0,5 km. The same is true for the width of the both seas – 300 km for the Baltic Sea and 580 km for the North Sea. Only regarding the length the Baltic Sea is similar to the North Sea both of them being stretched in north – south direction for about 1 000 km.

Fig. 1. **The map of the Baltic Sea with the largest gulfs**
(Source: http://www.zonu.com/images/0X0/2010-07-02-11806/
Region-del-Mar-Baltico-2008.png)

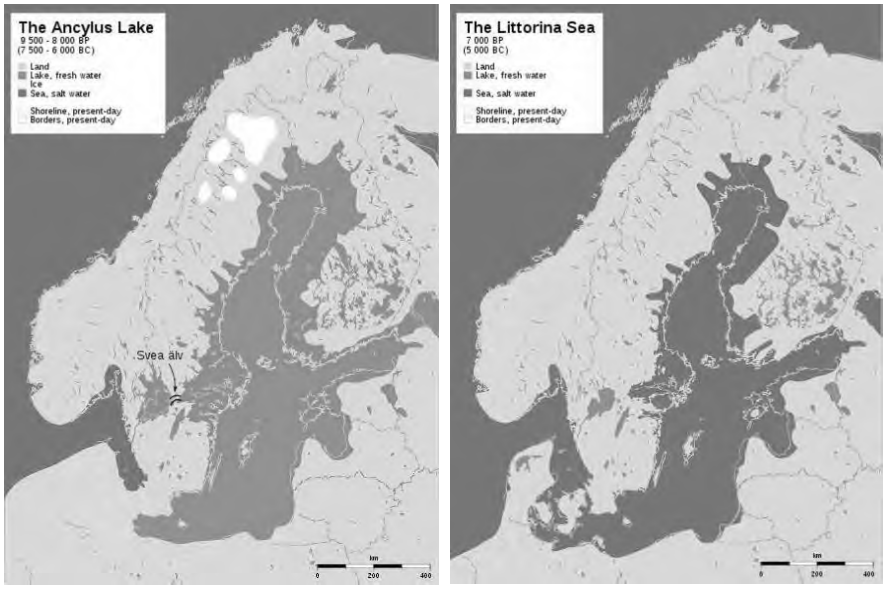


Fig. 2. **The examples of freshwater (The Ancylus Lake) and marine (The Littorina Sea) stages in the history of the Baltic Sea**
(Source: http://my.opera.com/nielsol/blog/2009/08/19/short-history-of-baltic-sea-2)

Like everything on the Earth the Baltic Sea is unique in several ways. At first, in the terms of the geological time-scale it is a quite young sea, having its present shape only for six thousand years. Since the end of the Ice Age about 11 000 years ago it has switched several times from freshwater lake to saline water area. Due to the land uplift which occurred more intensively at the northern part of the Baltic Sea area approximately 7 000 years ago, the sea finally got the connection to the North Sea and gradually obtained its borders what are present today (*see* Figure 2). The land uplift still continues and the level of the sea is still changing – increasing each year by 6 mm in the southern part and respectively decreasing in northern areas.

The second unique feature of the Baltic Sea is the presence of gradients – gradually changing properties of the environment. Gradients are both in the north-south and west-east directions. Ecologically two most important gradients are those of water temperature and salinity (*see* Figure 3). The salinity – or grams of salt mixture per one kilogram of water, the value is per mille (‰) – has its highest values at the southwestern part of the Baltic Sea near the connection with the North Sea. Here it fluctuates between 25 and 30‰. In the World Ocean and also in the North Sea the salinity varies around 35‰. Gradually salinity decreases due to the decline of the North Sea effect and growing impact of inflowing rivers. Thus the Baltic Proper and certainly the Gulfs of Riga and Finland are already a brackish water basins – neither marine nor freshwater with a salinity around 5-7‰. In the most northern areas of Bothnian Bay the salinity is very low (1‰) and the water there is almost fresh. Water temperature follows similar southern-northern gradient although the changes are not so drastic. In general the winters are always more soft in the southern parts and spring starts earlier there while towards the north possibility of having ice in winter is higher and in summer warm water temperatures are present for shorter time.

Fig. 3. **The gradients of water temperature & salinity in the Baltic Sea –** salinity gets lower from dark to light; temperature gets colder from lighter to darker
(Source: http://www.helcom.fi/)

The existence of seasons as it should be in the temperate climate and the enclosure determines the third characteristic feature of the Baltic Sea – the vertical gradients and layers. Although the Baltic Sea is not very deep still during warm seasons only the first 15-20 m of water column reach at least + 15 degrees Celsium. The rest of the water column stays at the temperature of 4-9 degrees depending from the sub-basin of the sea. It should be mentioned that the temperature drops quite drastically from e.g. +17 to +9 within the layer of some meters and this layer is called thermocline (*see* Figure 4). As the both water masses above and below the thermocline have different densities, they do not mix during the summer and the transport of any substances or particles through the thermocline is not intense. When the water cools again in autumn the temperatures become similar and the thermocline disappears. A vertical gradient exists also for water salinity – the inflowing freshwater mixes with the saline water and forms the upper layer with reduced salinity and density. This reduced salinity layer stretches deeper into water column – up to 80 m depth. There the salinity increases abruptly by 3-4 ‰ again in a quite thin layer which is called halocline. Halocline is a permanent layer and not occurring or disappearing seasonally. However, this phenomenon depends from the depth and in shallower sub-basins like Gulf of Riga the halocline does not occur at all. The absolute values of the salinity also are different regarding the sub-basin (*see* Figure 4). The halocline as well prevents the mixing of water masses. Occurrence of these layers is called stratification. An ecological significance of the stratification will be considered in Part II of this description.

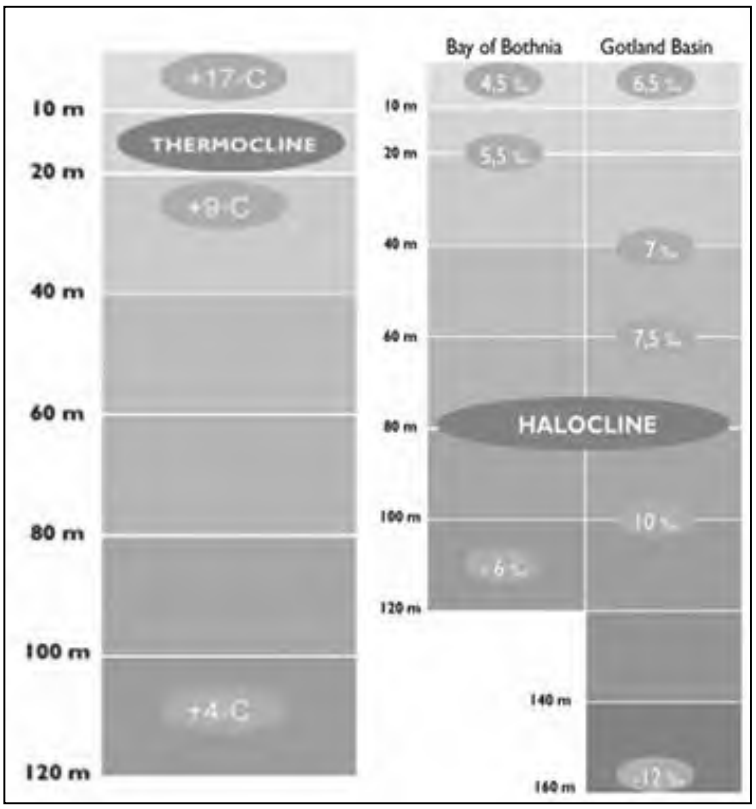


Fig. 4. **A stratification – the thermocline and halocline in the Baltic Sea**
(Source: http://www.balticseanow.info/)

Besides the dissolved mixture of salts determining the salinity there are several other substances dissolved in the seawater. Some of them are essential for development of living organisms and are called nutrients. The most relevant nutrients are nitrogen, phosphorous and silicate or N, P and Si. Dissolved forms of their inorganic salts are in the seawater in various concentrations depending from the season. The ways how the nutrients occur in the sea are several. Inflowing by rivers contributes the most to the nutrient pool of the Baltic Sea. Rivers collect the input from agricultural areas (mineral enrichment of the fields), from forests (leaching from the soil of cut areas), from wastewater treatment plants (the discharged water is not 100% clean) and from sparsely populated areas where are no wastewater treatment plants. The particles of various substances, including nutrients, are emitted in the air from industrial and agricultural processes and later are deposited back – also in the rivers. The atmospheric deposition is occurring directly in the seawater, too. Other direct ways of nutrients to the sea are leakage from the beaches and populated coastal areas, discharge from the wastewater treatment plants located on the coast. The nutrients are also stored in the seafloor sediments and in certain oxygen conditions are released back in the water column thus adding to the total pool. The life in the sea without nutrients is not possible but the consequences of excess nutrient amounts will be discussed in the Part II. Taking into account the relation of nutrients with the inflowing rivers and processes on the coast also the largest concentrations of nutrients are observed in coastal areas (*see* Figure 5) where the concentrations can be up to 10 times higher than in more off-shore areas of the sea.

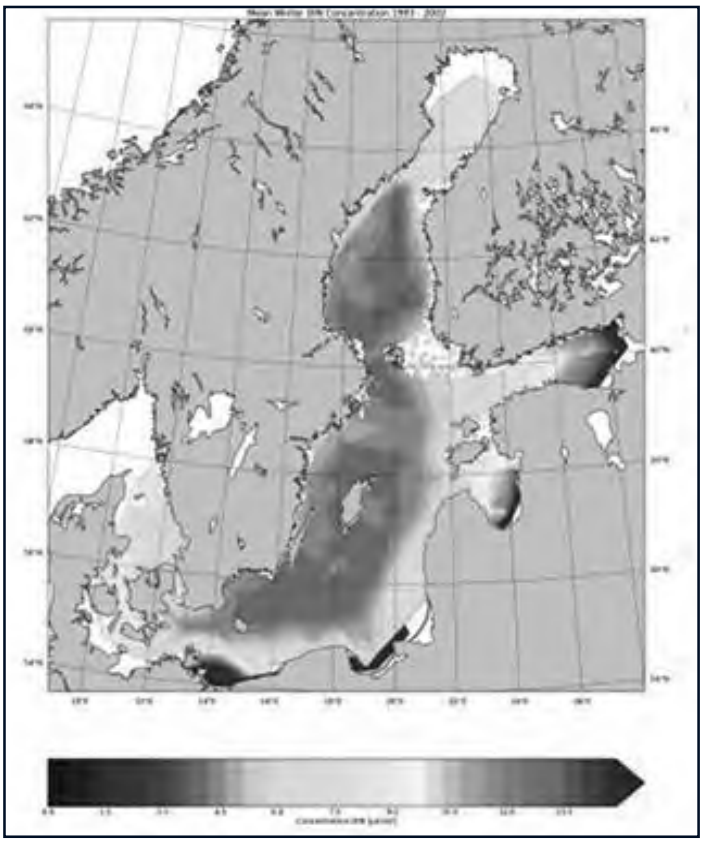


Fig. 5. **Spatial distribution of nitrogen concentrations in winter**
(Source: http://www.helcom.fi/)

Characteristics of the living organisms in the sea

Like we see and maybe know from the processes on the land if there are enough nutrients, temperature and light the production of plant biomass can be started. On land it starts in the spring and the same is true also for the Baltic Sea. The difference between the on-land and marine plants in the case of the Baltic Sea is the size. Plants, swimming in the water column, are algae of various species all together called phytoplankton. Phytoplankton is composed of microscopic organisms – in the Baltic Sea there are approximately 2 000 species of tiny algae. Algae belong to several taxonomic groups and most abundant are four of them – cyanobacteria or blue-green algae, diatoms, dinoflagellates and green algae. The shapes and forms of algae are very different – they live as lone cells, as colonies, as chains and as cenobies (*see* Figure 6).

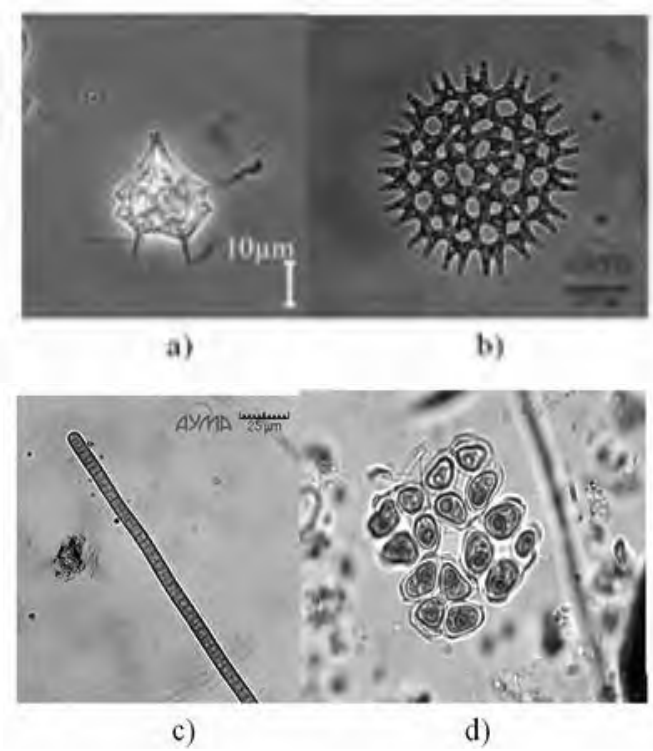
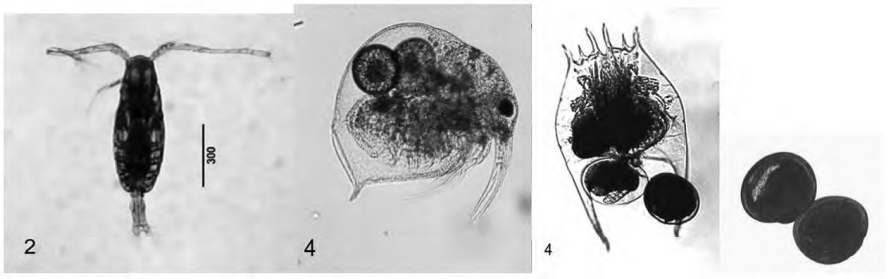


Fig. 6. **Variety of algal lifestyles – a) single cell; b) colony; c) chain; d) cenoby**
(Source: http://www.itameriportaali.fi; http://www.astro.temple.edu/)

So when the water temperature is sufficient – and in the Baltic Sea it means already about 5-8 degrees Celsium, the daylight is available for at least 10 hrs and there is plenty of nutrients in the water – algae start to grow intensively. This spring growth occurs from March to May according to temperature gradient in the sea, is called also "spring bloom" and consists mostly of diatoms. Diatoms are the algal group having the highest requirements for inorganic nutrients and their growth in spring is stopped by setup of thermocline, because algae cannot receive nutrient-rich water anymore. When the layer above thermocline is almost lacking inorganic nutrients other groups of algae – dinoflagellates and green algae – grow more intensely but never reaching

the biomass levels of diatoms. Cyanobacteria appear later in summer when the water temperature is above 15 degrees Celsium and use the atmospheric nitrogen for their growth. In autumn when the thermocline is destroyed by dropping water temperature of the upper layer, diatoms have their autumn bloom although not so intense as in spring. Phytoplankton is a food source for other types of plankton and part of it sinks to the seafloor providing a food also for organisms living there.

Now we address some of those eating phytoplankton and living in the water column. These are animals like in on-land ecosystems (cows and grass, for example) but again their largest deviation from the on-land parallels is size. Slightly larger than phytoplankton but still mostly microscopic beings are called zooplankton and in Baltic Sea they are about 200 species. Also for zooplankton abundant are three groups – two of them belonging to crustaceans and the third is called rotifers (*see* Figure 7). Representatives of crustaceans – copepods and cladocerans are the main constituents of zooplankton biomass and also a food source of plankton-eating fish. Zooplankton is present in the water all the year round, although the highest numbers of animals are in summer and early autumn when the water temperature is the most favourable for development. In zooplankton you can find also other organisms like jellyfish which are well-seen at the end of summer in the water and on the beach. Meroplankton is a special group of zooplankton consisting of planktonic larvae of benthic animals – those living on the seafloor. Bivalves, crustaceans and worms have the juveniles swimming and feeding in the water column and settling on the seafloor at a later stage.



a) b) c) d)

Fig. 7. **Zooplankton organisms – a) copepod *Acartia*, b) cladoceran *Bosmina*, c) rotifer *Brachionus*, d) larvae of Baltic clam**
(Source: http://www.io-warnemuende.de/)

Thus we gradually have turned from water column to the seafloor. The seafloor of the Baltic Sea consists of various types of sediments – mud, sand, gravel, rocks. All the types of sediments are habitats for benthos – plants and animals living on the seafloor. Different from plankton these organisms have longer life cycles and larger sizes. Most of the benthic animals are visible with naked eye when collected from the sediments. Animals or zoobenthos – worms, bivalves and crustaceans – use the sediments in several ways by living on the surface, digging in partly and totally (*see* Figure 8). Zoobenthos feeds on sunken algae or detritus, bacteria and other organic particles in the sediments. Benthic animals themselves are food source for benthic-feeding fish and seabirds like ducks which can dive for the food.

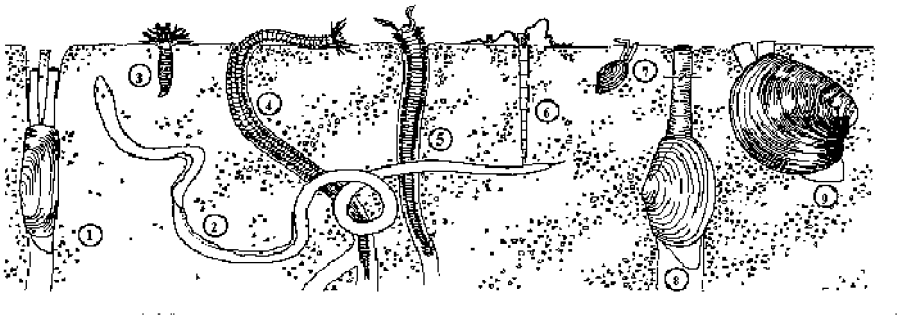


Fig. 8. **Zoobenthos in the sediments of the Baltic Sea**
(Source: http://www.dmu.dk/)

Plants growing on seafloor are also quite easily visible and all together are called phytobenthos. The suitable substrate type of seafloor or sediments fro growing are rocks and boulders. Availability of substrate therefore can be limiting the distribution of phytobenthos. Other limiting factor is light for photosynthesis and in this case if the substrate is suitable, phytobenthos can grow as deep as the light penetrates into the water in sufficient amount. Most popular species of phytobenthos in the Baltic Sea is brown algae *Fucus vesiculosus* or bladder wrack (*see* Figure 9). It is growing across almost the whole Baltic Sea and is regarded as a good indicator of environmental quality. Similar to the plants growing on land, also phytobenthos includes annual and longer living species. Excess of annual species is regarded as sign of declining environmental conditions with too high nutrient concentrations. We will consider this issue more in the Part II.

Fig. 9. **Bladder wrack in the Baltic Sea** (Source: http://www.helcom.fi/)

Grows of phytobenthos are the areas with a lot of different functions – it is a feeding place for zoobenthos, hiding opportunity for zooplankton, spawning site for Baltic herring, nursery area for several fish species and possibility to have a lunch for seabirds. Thus these locations are having high biological diversity and actually are the richest in the Baltic Sea.

Now we will discuss the largest creatures living in the Baltic Sea – fish, birds and mammals. Keeping in mind the food-web or "who eats whom", let's look at the fish at first being a food item both for waterfowl and mammals.

The list of Baltic Sea fish has about 170 names in it and even more – 90 of those are regarded as threatened. Still, part of these threatened species is just very seldom guests from the North Sea or Atlantic Ocean. Regarding the salinity values in the sea, the fish species composition is a mixture of truly marine, brackish-water and freshwater species. It is interesting that despite the high number of species, in the Baltic Proper there are just three dominant species of North Atlantic origin – cod, Baltic herring and sprat. Being the most commercially important species, they are the best investigated ones in the Baltic Sea. Abundance and breeding success of cod is related with the salinity and oxygen concentrations under the halocline – here the cod is spawning and eggs need a certain water density to develop in the water layer. Different from the North Sea where cod is a benthic-feeding fish, in the Baltic it feeds in the water column on zooplankton (juveniles) and other fish, mostly sprat (adult). Baltic herring and sprat are also strictly plankton feeding species and copepods are the group they like to have in their diet. Regarding other interests of industrial fisheries, three species of flatfish are the benthic – eating fish being targeted. The juveniles of flatfish grow up in shallow areas and feed on zooplankton, while the older stages are feeding on bivalves and other benthic animals in deeper areas. Close to 30 species of freshwater fish occur in the coastal areas – pike, perch, pikeperch and roach are among the most abundant ones. Due to the better feeding possibilities freshwater fish in the brackish water are bigger than their siblings in lakes and rivers. Several species of the Baltic Sea fish are the migratory ones – being born in the river they live in the sea (salmonids) and vice versa – born in the marine conditions spend their life in freshwater (eels). So traveling occupies an important part of their lives and is determined by "home effect" – need to return for spawning to the sites where they had hatched.

The number of bird species is approximately 4 times lower than of fish – about 30 bird species are nesting at the coastal areas of the Sea and about 20 species have the Baltic Sea as an overwintering or resting during migration area. Abundance of overwintering birds in numerous areas of the Baltic Sea is high and reaches the level of area of European significance for the respective population. Density of nesting birds has a decreasing gradient from the south to north related to the mildness and length of winter. However, there are several species – eiders, terns, gulls – that have spread in their distribution in the northern direction during the last 100 years and most probably due to more milder climate in the Baltic Sea area in this period. Bird and human interactions are quite complex but here I will just mention that human activities in the Baltic Sea area have stimulated the increase of some species previously close to extinction. Ban of several pollutants and stronger protection measures have resulted into upward trend for e.g., white-tailed eagles, cormorants and barnacle geese. Distribution of birds in the sea is related to the depth and available food there. For example, in the deeper areas exceeding 50 m depths mostly gulls are utilizing the by-catch and waste from the fishing trawlers, but in the depth of 10-25 m ducks and goldeneyes are diving for benthic animals.

The largest animals in the Baltic Sea eating fish are marine mammals – seals and cetaceans. Three seal species inhabit the Baltic Sea – the grey seal, the ringed seal and the spotted seal. All of them are protected species in the European scale, however Finland and Sweden issue certain amount of hunting licences on seals. The grey seal

is the largest one and also having the highest abundance in the sea – more than 23 000 animals. They are migrating intensively in search of food or for some other business and can cover several hundreds of kilometers in few days. The ringed seal is an endemic (i.e., found and living only here) species of the Baltic Sea and concentrated in the northern part of the sea. It is almost by 1/3 smaller than the grey seal and not migrating for so long distances. The breeding success of the ringed seal depends on existence of ice very much. Ice is a nursery ground for cubs where they can hide in holes and caves their mothers have made or found for them.

Due to decline in ice presence during mild winters of late 1980s – 1990s the amount of the ringed seals dropped quite significantly – from 15 000 to 6 500 currently. The spotted seal is staying at the southern areas of the Baltic Sea and also not performing extensive migrations. By size it is in between of the other two species and population is estimated as 6 000 animals. Seals are feeding on fish and it is known than adult grey seal needs 10 kg of fish per day. The diet requirements is unfortunately the reason of conflict between seals and fishermen (from fishermens' perspective, certainly).

A lone cetacean species or small whale occurs in the Baltic Sea and it is harbour porpoise. Abundant 80 years ago (10-15 thousands of animals) and often sighted in many parts of the Baltic Sea, it is now rarely observed (about 600-800 animals). The drastic decrease of dolphin's abundance occurred after World War II and reasons are still unclear why. Lack of food resources, intensive fishing and traffic, pollution and natural increased migration to the North Sea are mentioned as possible causes. The porpoise is feeding on benthic fish and benthic animals and has been using the Baltic Sea as a feeding area during warmer part of the year. In winter it stays in the North Sea. In recent times the animals are believed to stay in the southern Baltic Sea as most of the sightings are recorded there and does not travel to Gulfs of Riga and Finland anymore.

Now we have got the impression what are the features of the Baltic Sea and who lives there. Based on the obtained knowledge we will try to embrace the most relevant problems for the environment of the Baltic Sea and how could the possible climate change influence the environmental quality of the Sea.

2. The most relevant environmental problems and the climate change impacts

The catchment area of the Baltic Sea is inhabited by 90 million people. 9 countries around the Sea with some of them having extensive agriculture and some – highly developed industries, certainly is a pressure for the marine environment. Therefore already 40 years ago the Baltic Sea countries understand that the common sea should be protected and that protection measures should be coordinated and carried out as mutual cooperation. Thus in 1974, Helsinki, the Convention on protection of the Baltic Sea environment was created and signed. The executive body of the Convention is known as Helsinki Commission or HELCOM and it consists of country representatives. HELCOM has worked actively since then by identifying the most urgent environmental problems and finding the solutions by joint practical actions and elaboration of recommendations. Currently identified main fields of environmental problems are eutrophication, hazardous substances, loss of biological diversity and maritime activities. Below each of those is shortly explained.

Eutrophication – it is a process, starting when the nutrient concentrations are exceeding the levels necessary for regular ecosystem functioning. In the Baltic Sea nutrient concentrations started to increase rapidly in 1960s when agricultural practices enlarged the use of mineral enrichment, the number of population grew but waste water treatment was not on so high level as it is now. Eutrophication so far is the best investigated environmental problem of the Baltic Sea. Increased nutrient concentrations are triggering increased growth of phytoplankton and short-living species of phytobenthos, called filamentous algae. The large amounts of organic matter in the water decrease the transparency and thus limit the light availability for long-living phytobenthic species. In this case the depth distribution of e.g. bladder wrack decreases. After the bloom phytoplankton settles to the seafloor where it is used by zoobenthic animals as a food but also utilized by bacteria which are transforming the organic matter back to inorganic components. This transformation process requires oxygen and if there is plenty of settled material, bacteria can utilize the whole oxygen near the bottom. The stratification brings additional pressure – the water cannot be mixed to have additional oxygen in it. Therefore several areas in the deeper parts of the Baltic Sea are constantly lacking oxygen and certainly nobody alive is there (*see* Figure 10). A term "dead zones" is used to describe these areas. Stratification is permanent and the only way of aerating these deep areas would be with the massive inflows of oxygen rich water from the North Sea. However, this phenomenon is becoming less and less frequent due to the changes in atmospheric circulation – the last large-scale consecutive inflows occurred in 1997 and 2003 while till 1980s were observed once a year.

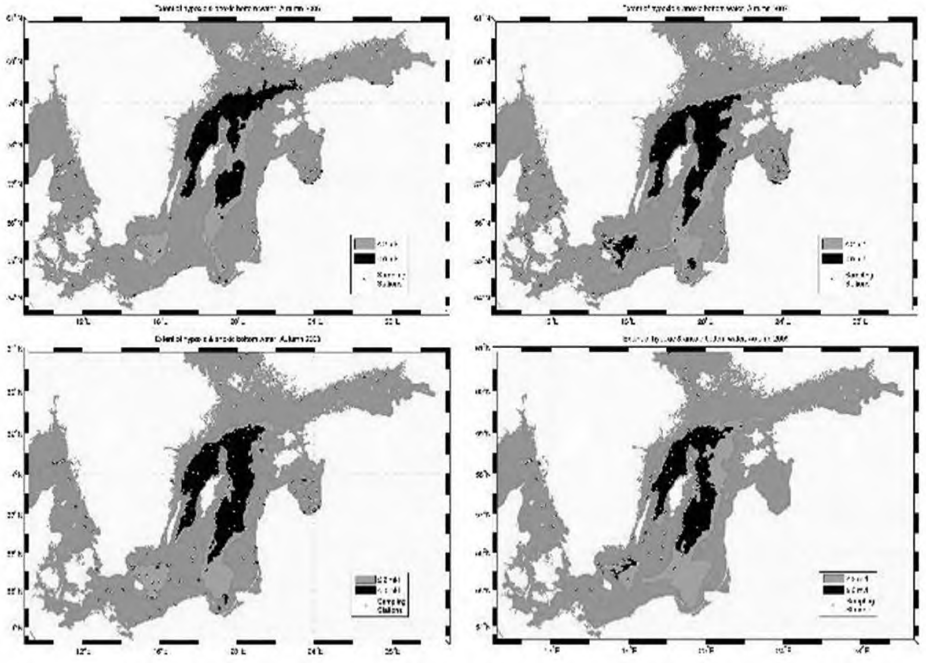


Fig. 10. **The bottom zones without oxygen (black) in the Baltic Proper, during the year 2010**
(Source: http://www.smhi.se/)

So eutrophication involves several changes in the plant and animal communities of the sea – species composition is changing towards more tolerant and short-living ones, the number of species is often reduced and in the worst cases the communities disappear at all. Almost every summer the Baltic Sea faces the problem of massive blooms of potentially toxic cyanobacteria. Their toxins are produced in certain conditions depending on age of algae, their density and water temperature, therefore they are not mandatory toxic. This group of algae need some concentrations of phosphorus salts in the water and high water temperatures – excellent if around 20 degrees. The phosphorus is re-circulated in the water column therefore no external supply is needed. Cyanobacteria are able to fix atmospheric nitrogen and thus can grow in really nutrient-poor conditions. The lethal toxic effects so far have been observed on animals but the massive blooms are the reason for closing the beaches and ban of swimming just in the middle of holiday season.

HELCOM has been initiating and coordinating various actions combating eutrophication since its foundation. The most recent overarching activity is the acceptance and implementation of the Baltic Sea Action Plan or BSAP (2007). The BSAP addresses the Baltic Sea health in several aspects, in case of eutrophication the focus is on reducing the basin-based and country-based nutrient loads. Every country has a commitment to reduce a particular amount of nitrogen and phosphorus loads to the Baltic Sea through better management of agriculture, wastewater treatment, transboundary pollution and shipping.

Hazardous substances – two types of hazardous substances can be identified. One group includes naturally occurring elements and compounds but in too high concentrations. The best known representatives of this group are trace metals. The second group consists of human created substances, mostly of organic nature, i.e., organic pollutants. Effects of the older ones like DDTs (dichlorodiphenyltrichloroethane) are investigated and unfortunately, also experienced – the numbers of grey seals and white-tailed eagles dropped drastically during 1970s and 1980s in the Baltic. Still, new organic compounds are appearing in the production continuously. The largest problem is the lack of knowledge how these substances impact the ecosystem health as they are accumulating in the food –webs and always being as a mixture of various pollutants.

HELCOM has called for a range of actions to reduce the impact of hazardous substances. The use of DDTs has stopped in the area and there is evidence on concentrations declining in the surface water of the Baltic Proper (*see* Figure 11). A list of priority hazardous substances has been created – the countries are recommended to monitor the distribution of these and apply usage restrictions for them. And certainly, the preventive and reduction measures should be coordinated between the countries around the Baltic Sea.

Biological diversity or biodiversity is affected as a rule in negative aspect both by eutrophication and hazardous substances. In addition to these factors reducing the biodiversity, fishing, oil spills and transportation, invasive species should be mentioned. Why is biodiversity important? Richer it is, more easy for the ecosystem is to stand the pressures and influences – ecosystem is more flexible and adapts faster and without particular losses to the changed conditions. Although often understood so, the biodiversity is not just a list of species. The keywords here are “functional groups” and “habitats”. Functional group ensures happening of certain process or function in the ecosystem, e.g., predators ensure predation. The functional group may have several species or – often for the Baltic Sea – just one species in it. Number of cod (only top

predator) declined considerably in 1990s due to heavy fishing and decreasing salinity worsening the spawning and hatching conditions (*see* Figure 12). Across the food-web it expressed as increasing number of sprat and partly Baltic herring, decreasing abundance of certain copepod species because of predation pressure from fish, growth of phytoplankton and strengthening of eutrophication effect in some areas as the phytoplankton was not grazed so much anymore.

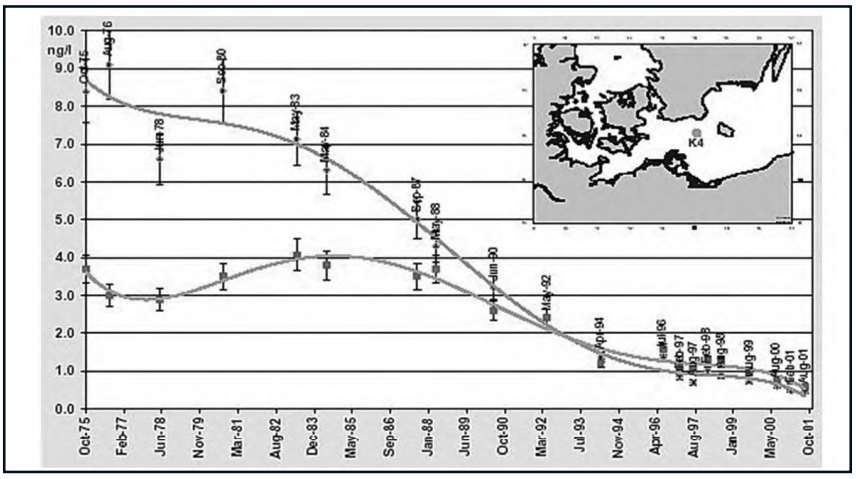


Fig. 11. **Time trends of DDTs in the surface water of the Baltic Sea, Arkona basin, 1976-2011**
(Source: http://www.helcom.fi/)

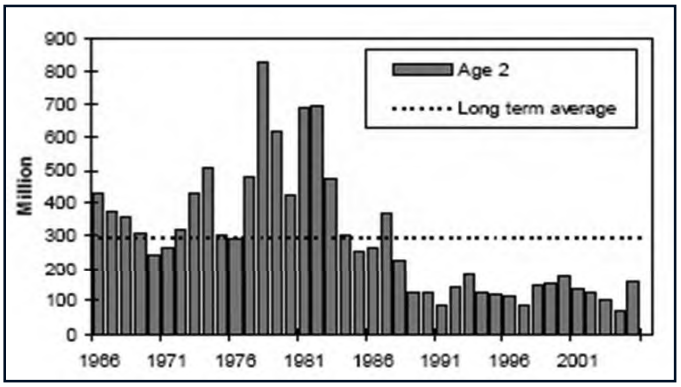


Fig. 12. **Recruitment success of cod in the Eastern Baltic Sea**

In general, the biodiversity of the Baltic Sea is quite low due to the salinity gradient and presence of brackish water. Brackish water is evolutionary quite young environment and therefore the number of species having adapted to it still is low. It also give an opportunity for other species from other areas to compete (and in many cases – successfully) for the place in the ecosystem. So we tackle now the issue of invasive species. The invasive or non-native species occur in the sea mainly due to

shipping – in ballast water or attached to the hull. Other important route for invasive species is the channel connections of catchment areas of Baltic and Black Seas. As the shipping intensity is continuously increasing, so does also the appearance of the invasive species (*see* Figure 13).

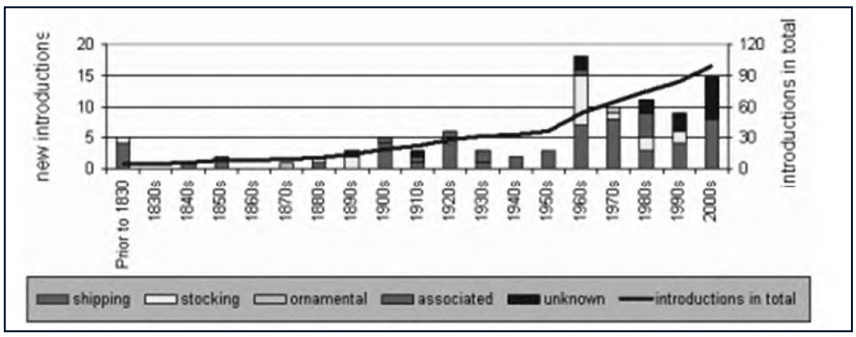


Fig. 13. **Dynamics of introduction rate of non-native species into the Baltic Sea** (Source: http://www.helcom.fi/)

The main concern in the appearance of the invasive species is the possibility of outcompeting of local species thus changing the food-web and ecosystem functioning. Indeed, if the species establish itself in the sea it is impossible to get rid of it. As a rule the incoming species are always ecologically very tolerant and with high ability of adaptation. Fortunately, currently only the competition of local and invasive species has been observed (e.g., for benthos polychaetes), no local species has been extinct yet. Rate of distribution is quite high for the marine areas – it takes about 5-10 years for animals and 10-15 years for plants to "travel around" the sea (*see* Figure 14).

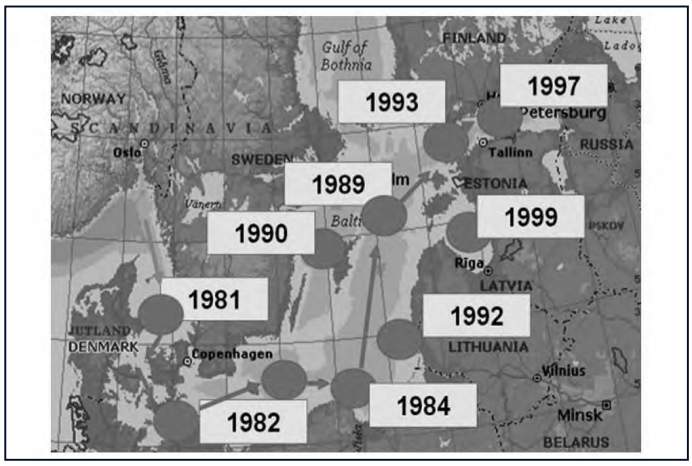


Fig. 14. **Distribution history of non-native phytoplankton species *Prorocentrum minimum* in the Baltic Sea** (Source: http://www.helcom.fi/)

Oil spills and oil transportation having a risk of oil spill pose another threat to the biodiversity mostly by destroying the habitats as the long-term effect and causing death of organisms as the short-term impact. Oil pollution disturbs or inhibits growth

and respiration of coastal benthic systems. The scale of damage definitely depends on the volume of spilled oil but also small-scale still frequent events can result in chronic contamination and destruction of benthic communities.

In the range of HELCOM's response to the mentioned threats are designation of protected areas which have high biodiversity values, development of maritime spatial planning – to balance the needs of all users of the sea and the ecosystem, cooperation on measures between countries as neither invasive species nor oil spills follow the borderlines of the countries and increase of general public knowledge to ensure that people around the Baltic Sea are aware of the values and fragility of the sea.

Climate change has two components at least – the natural and human-induced changes and the problem is to disentangle them. Therefore the possible changes in the Baltic Sea are described but without indications of reason. The water temperature increase in the sea is indicated both by globally and regionally provided climate change scenarios. It could lead to the disappearance of ice cover, earlier development of phyto- and zooplankton communities and shift of macrozoobenthos breeding time. During springs the composition of dominant phytoplankton species will be determined by nutrient concentrations and water stability. If the nutrient concentrations will increase and water stratification sets early then a current dominance of diatoms will be replaced by dinoflagellates (*Peridiniella catenata*). If the wind activity will be strong causing higher water turbulence then diatoms could held their dominant position as the turbulence helps the species to remain in the water column. Also spring zooplankton development will start earlier. In case of dinoflagellate dominance as a food source higher proportion of rotifers is possible. Also in summer the wind strength will have essential significance besides the temperature increase and water stratification. If the wind activity will be stronger the increased abundance of cyanobacteria will not be observed. However, with the growth of phosphate concentrations and water temperature an increase of total phytoplankton biomass is possible exactly as a result of successful cyanobacterial development. Zooplankton community can have a higher share of freshwater species as the salinity is foreseen to decrease. Still, the changes in the food web would affect mostly the lower levels since the total zooplankton abundance is more likely to increase and food source for fish will not be modified substantially. Increase of primary production in combination with prolonged low oxygen concentration will classically lead to decline of macrozoobenthic communities in the deeper areas. Consequently the self-purification possibility of the sea varies and the food base for benthic fish is reduced. At the same time importance of coastal areas will raise for thriving functioning of the sea since long unfavorable conditions are not expected there. Course of future for phytobenthic communities will rely on the level of nutrient concentrations at the coastal areas. Short-term living algae will be more present if nutrient concentrations grow. Increased wind activity will diminish water transparency and thus also limit prosperous development of long-living algal species.

The productivity of the Baltic herring will increase at higher mean water temperature in spring. Dynamics of the Baltic cod stock will relay on fishing mortality by positive or negative modifications of salinity fluctuation. The abundance of sprat will vary in the cycle of 7-11 years not so directly related to climate change. Still the calculations of fishing mortality indicate that illegal fishing constitutes a significant part of the total catch. Illegal fishing causes high fishing mortality and reduces the total allowed catch. Therefore a successful fisheries management requires the reduction of fishing mortality via exclusion of illegal fishing almost independently of the climate.

The climate change can improve or worsen the productivity of year classes but in the situation of intensive fishing will not solve the level of stocks.

So still in the Baltic Sea the key factor remains the human being and his activities – how positive or negative they are. The course of climate change mainly will just strengthen or hide the impacts of the anthropogenic measures. We have to be reasonable in our attitude towards our common sea.

Baltijas jūras ekoloģija un klimata svārstību iespējamā ietekme

Kopsavilkums

Raksts ir sadalīts divās daļās. Pirmā daļa sniedz vispārēju Baltijas jūras raksturojumu, aprakstot jūras ekovidi, kā arī tajā dzīvojošos dzīvos organismus. Otrā daļa savukārt skar būtiskākās vides problēmas un iespējamo klimata pārmaiņu iespaidu. Tādējādi raksts sniedz pamatzināšanas par Baltijas jūras ūdens baseina nedzīvo un dzīvo vidi.

Atslēgas vārdi: Baltijas jūras ekoloģija, dzīvie organismi, planktons, aļģes, jūras dibena flora un fauna, jūras zīdītāji, klimata pārmaiņu iespaids

Dr. biol. **Anda Ikauniece**

Director of Latvian Institute of Aquatic Ecology,
leading researcher

Address: Daugavgrīvas iela 8, Rīga, LV-1007, Latvia

Phone.: +371 67601995

E-mail: anda.ikauniece@lhei.lv

Insects in a Changing World: From Past to Future (An Essay)

Kukaiņi mainīgajā pasaulē: skatījums no pagātnes nākotnē (eseja)

Voldemārs Spuņģis, Dr. biol. (Latvia)

Author (entomologist) in this essay speaks of unique and diverse world of insects. The multitude of the species of insects ensures biodiversity on our planet. In order to avoid homogenisation of the ecosystems, society should understand that its existence in the most profound essence does not depend on technologies but on natural resources. Human history is closely connected with understanding of the insect world. Author emphasizes that the Bible (and especially the Old Testament) is the best example of mutual understanding between natural processes and a man. Using examples from the Old Testament different species of insects are discussed (lice, mosquitoes, sand flies, fleas, bees, a.o.) in close connection with the culture of society and human existence.

Key words: entomology, Old Testament, insect species, lice, mosquitoes, sand flies, fleas, bees, biological diversity, natural resources

If we look on the diversity of world species, we can easily come to conclusion that insects are ruling the world. Why such an assumption? Because if we are looking at number of species, then it is found that number of insects are comprising more than 1 000 000 species; some estimated number up to 100 000 000 species. The estimation is based on counting of insects on a single tree species in the tropical forest. Man arrived much later and had to accept the world of insects.

Human history is closely connected with understanding of the world of insects. Since ancient times humans have observed the life of insects in order to use the possible benefits produced by insects. Benefits might be quite different – from getting honey or food up to avoiding the insects transferring diseases. At the same time insects might be very harmful to humans as vectors of deadly diseases, and that is something worth to know about.

Looking through the history of humankind we can found innumerous evidences of the presence of insects in the history. For example, the Old Testament, which is closely linked to the depiction of natural events, reveals diversity of animals and

insects, testifying to the good understanding of animal diversity. On the other hand, New Testament concentrates on a human being, neglecting animal importance in human life.

As an entomologist I have analyzed evidences of insects in the Holy Bible. Among many evidences I have found some very important to my mind. In certain cases insects have had a crucial role in the survival of people who have developed religion of future. The Old Testament says: "And they did so; for Aaron stretched out his hand with his rod, and smote the dust of the earth, and it became lice in man, and in beast; all the dust of the land became lice throughout all the land of Egypt" (Exodus 8:17). How this statement can be explained from perspective of modern knowledge?

Aaron, brother of Moses, had passed through Egypt. This country is known to harbour different diseases that can affect humans. The attackers of Aaron had to be diminished nearly instantly thus giving the possibility for a rescue. That is why the question raises – what was the reason of Aaron being induced by "smote the dust of the earth"? There are many assumptions depending on translation (e.g., Latvian and English). One of them, these had been lice, mosquitoes, sand flies and even fleas. I do firmly believe that Aaron had known some definite species of insects. Unfortunately, the translators of the Old Testament did not.

Next, I should analyze the biology of the suspected insects. First of all, the lice. These insects are well known as human blood-suckers and usually follow after humans in critical situations, these being poverty and starvation, ethnical and military conflicts. The lice had won even the brave military leader named Napoleon! Is it possible at all? Yes, and very simply. The lice are vectors (transmitters) of some deadly bacterial diseases as louse born typhus *Rickettsia prowazekii* and trench fever rickettsia *Rochalimaea quinta*, which usually has outbreaks during the long-lasting military conflicts. But lice do not have any connection with the soil (ground). These insects are specialized parasites on the human body. And if any of Aaron's followers had this louse then all of them would be infected with the deadly bacteria. The development of these bacterial diseases is rather slow and usually takes few weeks. Thus the lice falls off of the list of suspected insects of the caused trouble.

Mosquitoes follow the lice. At a first glance it seems that mosquitoes cannot be an important cause of infection in a desert. Meanwhile, oases are important key points for distribution of mosquitoes. A yellow fever mosquito *Aedes aegypti* is the most famous among mosquitoes transferring deadly diseases for humans. This insect could transfer not only the yellow fever but also other dengue of viral infection as well as some more infections. *Aedes aegypti* is widely distributed in the world, albeit firstly described from Egypt. The species is responsible for thousands of human deaths around the world. For instance, during the digging of the Panama channel about 95% of builders were hospitalized due to the tropical fevers transmitted by this mosquito. This mosquito species nowadays are supplemented by several species introduced from Asia, namely, *Aedes alpopictus*, *Aedes japonicus* and some other similar species. They constitute a new threat to Europeans as in total these species can transfer 22 viral diseases for animals and humans. Due to the climate change fastened by human consumption, these species are heading north and I expect to see them even in Northern Europe soon.

If we return to Egypt, we could easily find that the mosquitos are distributed along the Nile River and only sporadically distributed in the desert. Consequently, mosquitoes were not assisting Aaron to destroy the attackers.

Now it is our turn to analyze the contribution of sand flies. The name "sand flies" well coincide with the "Aaron stretched out his hand with his rod, and smote the dust of the earth, and it became lice in man and in beast". The sand flies (families *Psychodidae* and *Phlebotomidae*) really have behaviour of feeding from animal blood while the larvae are developed in the animal and human droppings. The blood-sucking sand flies are concentrated in the tropical regions, leaving temperate regions for unmanaged territory. Sand flies could be the vector of bacteria *Bartonella bacilliformis* or Carrion's disease, viral sand fly fever or three days fever, and of unicellular animal parasites (different species of the genus *Leishmania*). But the bacteria do not cause human deaths, fever usually lasts for three days and leishmaniasis develops into disease in several months. Thus the sand flies did not assist for the goal of Aaron.

Fleas are the next pretenders to the solution of escape of Aaron. Do fleas can affect the development of humankind at all? Definitely yes, as these small insects could be a vector of the deadliest infection in the human history – the plague Yersinia pestis! The plague is easily transferred from small rodents to a human by fleas and is causing bubonic plague. This disease kills about two thirds of infected humans within four days. That is the desired effect of Aaron! Humans infected by bubonic plague later can contaminate other people very quickly by direct contacts. The larvae of fleas develop in the soil (ground) and are fed from droppings of animals in the household with the remnants of animal or human skin. After the mature larvae pupate, they are waiting for some initial signal to break the pupa and become adult blood-sucking fleas. The signal for emerging of adults is soil vibration! Vibration means that any person or animal vibrates the soil (ground) by his/its feet. At these conditions fleas rapidly pupate and mature in a few days. The emerging fleas are very hungry and could bite infected rodent and later infect the human. It is well known that parasite affects the nervous system of host by changing the behaviour of the latter. In this case bacteria press the flea to suck the blood very shortly and change the host as soon as possible. This is the way in which plague is distributed rapidly. And I suspect these fleas are the main reason for the death of the attackers of Aaron. Actually, this should serve as an evidence of good knowledge of the biology of fleas.

Fleas causing transmission of the plague still favour its circulation among the rodents. Rodents are the natural nidus of the plague. In case of any disturbance in a human society – military conflicts, starvation, floods and de-domestication – this could be a reason for inflammation of the plague.

Well, the next citation goes: "And the house of Israel called the name thereof mannah: and it was like coriander seed, white; and the taste of it was like wafers made with honey" (Exodus 16:31). The question is – what is mannah? The suspected animals are scale insects. The scale insects suck plant (*Tamarix* spp. bushes) juice, extract proteins and expel drops of water containing high concentration of sugars. Drops of sugars in hot climate after reaching the soil and plants finally form "sugar dew" – a sort of concentrate of sugars. The sugars are an important source of energy that is particularly required for long-time travelers. Scale insect *Trabutina mannipara* could be the responsible insect for the rescue of Aaron. This insect lives on *Tamarix* plants characteristic to deserts, and the plant has high diversity – about 50-60 species.

What happens in our days? Scale insects are not providing humans with the beneficial "mannah". It is quite thr opposite, they become more and more dangerous pests to different plants, starting from such plants as vine grape – one of the crucially important plants in the ancient world – to plants growing on our windowsill.

The process is mainly due to the introduction of insects to new territories. The introduction of insects to new territories is facilitated by wide exchange of plants coming from different environments.

Let us examine one conspicuous example. The horse-chestnut leaf miner moth *Cameraria ochridella* is an excellent example. The tiny moth has lived for a long time in natural habitats north of Balkan Mountings where horse chestnut tree *Aesculus hippocastanum* has its natural range of distribution. The moth fly was described as a new species quite recently, as late as in 1986. Due to its beauty and modesty chestnut-tree is widely distributed in Europe. And in a short time, since 1984 (even before the description!) the species gradually occupied the whole Europe and invaded the horse-chestnut trees there. However, in this case scientists reacted just like after the first introduction. After the invasion of horse-chestnut tree leaf miner scientists finely paid significant attention to this species in searching for methods to reduce the damage of this insect. The question, why it has happened? – is of relevance here. Most probably the climate change is a reason for distribution of Mediterranean species to the North. But there has been no firm proof for that.

In the meantime the story about insects continues. "Even these of them ye may eat; the locust after his kind, and the bald locust after his kind, and the beetle after his kind, and the grasshopper after his kind" (Leviticus 11:22). It is known that educated people of the ancient world distinguished locust species, particularly those with significant impact on human life – migrating locusts. The two main species – migratory locust *Locusta migratoria* and the desert locust *Schistocerca gregaria* – are well-known as devastators of plants. Their migration ability is closely connected with density of population of these insects; the higher density, the higher is their ability to migrate. Additionally, the locusts are herbivores and facultative cannibals eating their siblings. Anyone who moves too slowly in wrong direction was consumed by its siblings. Migrations and migration directions was more or less predictable and that was assumed even in the ancient times. What's left after devastation of vegetation? Obviously, people should feed on locusts! Locusts are nutritious because of high content of proteins in their bodies. After invasion of locusts local people were asked to catch locusts, to dry them and use as food. It was a good advice written in the Bible (cited above).

Today desert locusts still regularly migrate in the arid areas, although migrating locusts are expanding their distribution area. Since 2007 the migrating locust in summers was regularly observed up to the Northern Europe. Again it raises a question – why so and is it an occasional event? The answer might be simple – it happen due to the climate warming in Europe; meanwhile, no scientific proofs are available at the moment. Speaking ironically, Europeans should to be ready to follow the predictions of the Bible in their menus and cuisines and to have locusts in their dinner.

Let us open the most familiar chapter from the knowledge of insects in the ancient world! The bees! If we consider that Eve offered an apple to Adam, then we should assume that the bees have pollinated the apple tree before. The bees are the most important pollinators of apple-trees. Consequently the bees have followed humans since their creation. Both in the Bible and in every other culture we can trace numerous evidences of bees' products (honey, wax). The common honeybee is distributed worldwide. However, the bees have different "races" which are adapted to particular local conditions – climate and plants to pollinate. Nothing has been said about diversity of bees – local "races" in the Bible.

Honey has been a major source of sugars for ancient people. The sugar means an inflow of energy in the body for passing "short-term" problems. That is why the honey-bees were so important in the past. Even now the freshly harvested honey is the best product that anyone should have for a satisfaction.

People of any particular region find the most important local "races" of bees in their surroundings. These bees are adapted to local climatic conditions and to pollination of local plants. Meanwhile, the world is changing and the bees have to follow these changes as well. For instance, in Latvia the local bee has diminished drastically in numbers because of invention of hybrids and more productive bees from other regions of Europe; consequently, the genetic diversity of bees has been reduced. Another striking example illustrates consequences of introduction of an African bee to South America. African bees are very hardworking and they collect much more honey than the local bees that led to their introduction. Both introduced and local bees made hybrids, which resulted in establishment of hybrid "killer-bees". These bees are very aggressive against people and hardly comply with living in hives.

What can we expect in te near future? Most probably mankind will keep its focus on welfare, thus the nature will serve just as a provider of goods and comfort. Ordinary people cannot understand the real threat to biodiversity, although it provides us with food, species, recreation and ecosystem functions – thus maintaining balance in nature. The most affected ecosystems are in the tropics that are inhabited by high diversity of plants and animals. Every change in equilibrium of nature strikingly affects both humans and their environment.

Scientists are well informed about the main threats to nature: they are caused by over-consumption of natural resources, changes of natural habitats, and introduction of species outside their natural range. The worst future scenarios predict homogenisation of ecosystems and reduced differences in regions with similar ecological conditions. Then there will be no difference, whether anyone lives in Canada, Europe or Japan.

Due to these threats to biodiversity scientists work hard to conserve local and regional diversity by establishing particularly protected territories and preparing the lists of protected species. Sharp increase of number and area of protected territories is observed in both Europe and other continents. However, simple analysis of locations of these territories gives an impression that they are located mostly in inhabited regions. For instance, the protected territories in Latvia are located along the boarders of regions with the worst network of roads, in seemingly unfertile areas and in the bogs.

What are lessons we learn from the past? First and foremost, we should know local insects to a good level of expertise, as well their ecology, and evaluate services provided by them. This knowledge could enable prediction of the future events – outbreaks of some species, possible damage to people and household or possible benefits to both humans and natural processes.

And finally, significant improvement in nature conservation can be achieved only if people would understand how important it is to conserve biological diversity and to reduce consumption of natural resources. Personally I am very skeptic about this issue and I expect further serious degradation of nature until the limit when people will be forced to think about conservation. Then everybody will realize that we don't depend on technologies but rather on natural resources, and will be forced to return to the roots – the Bible which is the best example of mutual understanding between processes in nature and a man.

Kukaiņi mainīgajā pasaulē: skatījums no pagātnes nākotnē (eseja)

Kopsavilkums

Autors (entomologs) esejā runā par unikālo un dažādo kukaiņu pasauli. Kukaiņu sugu dažādība nodrošina bioloģisko daudzveidību uz mūsu planētas. Lai izvairītos no ekosistēmu homogenizācijas, sabiedrībai būtu nepieciešams izprast, ka tās pastāvēšana visdziļākajā būtībā nebalstās uz tehnoloģijām, bet gan uz dabas resursiem. Cilvēces vēsture ir cieši saistīta ar kukaiņu pasaules izpratni. Autors uzsver, ka Bībele (it īpaši Vecā Derība) ir piemērs savstarpējai cilvēka un dabas procesu izpratnei. Esejā minētajos Vecās Derības piemēros ir aplūkotas dažādas kukaiņu sugas (utis, odi, smilšu mušas, blusas, bites u.c.) ciešā saistībā ar sabiedrības kultūras un cilvēkeksistences tradīcijām.

Atslēgas vārdi: entomoloģija, Vecā Derība, kukaiņi (utis, odi, smilšu mušas, blusas, bites), bioloģiskā daudzveidība, dabas resursi

Dr. biol., assoc. prof. **Voldemārs Spuņģis**

Chair of Zoology and Animal Ecology at Faculty of Biology, University of Latvia

Address: Kronvalda bulvāris 4-16c, Rīga, LV-1586, Latvia

Phone: +371 67034880

E-mail: voldemars.spungis@lu.lv

Environmental Ethics: The Fuzzy Limiting Factors for Sustainable Development

Vides ētika: ilgtspējīgas attīstības ierobežojošie faktori

Lucas Andrianos, Ph.D. (Greece, Crete)

It is universally recognized that disharmony of human activities with its environment and the ongoing ecological crisis may lead the Earth to an irreversible chaotic destiny. Politicians and scientists strive for the mitigations of environmental damages but there is no consensus for the causal root and remedy of the problems: global ethical recession. Chasing ephemeral economical progress homo sapiens has gradually evolved from "homo religiosus" to "homo economicus". Family concept has been reduced to its minimal economic unit and social injustices exceed every limit. The gap between the rich and the poor has reached the upper level that human history has never attained. The influences of religions on daily life become marginal and human activities are no longer restricted by ethical consciousness. As a result, the conservation of life support on Earth and the viability of sustainable development become the most alarming challenges for the 21st century.

We proposed methodology for measuring sustainable development called "Sustainability Assessment using Fuzzy logic Evaluation (S.A.F.E.). The results of the SAFE model coupled with the analysis of some case studies on national level reveal that environmental ethics could constitute an important group of "response" indicators which may control overall development sustainability.

The use of fuzzy logic in sustainability assessment appears relevant because environmental ethics indicators are not numerically measurable. As conclusion, decision makers should stop confronting environmental problems with solely technological and political solutions. Religions and environmental ethics revival must be given the highest priority because of their ability to control human activities and, therefore, to secure sustainable behavior. Specifically, Christianity that teaches unconditional love for "neighborhood", human and non-human alike, may actively reinforce the practice of sustainable behavior and avert the unsustainable path of modern society.

Key words: sustainable development, fuzzy logic, environmental ethics, Christianity

1. Introduction

Sustainable development has been the goal of most politicians and decision makers since the publication of the Brundtland report in 1987 [1]. After about 25 years, the list of actions in the Agenda 21 [2] resulting from the Earth Summit held in Rio remains on deliberation.

In 2007, environment ministers met in blistering hot Bali with more journalists than have ever attended a climate conference and the result is a minimal consensus. The progress made in Bali was minimal at best, writes DW's Jens Thurau. But the mandate for a Kyoto successor treaty by 2009 and the isolation of the US delegation were two lights in the dark. Four reports from the Intergovernmental Panel on Climate Change (IPCC), – never before has there been so much talk about reducing greenhouse gases as in 2007, but not a single reduction goal for after 2010 is included in the final text, although such goals have been the topic of discussions for weeks – even months – and warnings from scientists who have been recognized with the very highest prizes can be found in a one-and-a-half-line footnote. It's the same old situation that's to blame: The sacred oath that the wealthy states made at the environment summit in Rio in 1992 (for Rio Declaration *see* Appendix No. 1 at the end of Proceedings) to set a good example in cutting emissions hasn't been kept. The industrialized countries have lost valuable time – or, like the US and Russia, simply approach the climate challenge with demonstrative apathy.

Chasing ephemeral economical progress "***homo sapiens***" has gradually evolved from "***homo religiosus***" to "***homo economicus***". Family concept has been reduced to its minimal economic unit and social injustices exceed every limit. The gap between the rich and the poor has reached the upper level that human history has never attained (*see* Figure 1) [3]. The consequence is the unfair exploitation of the life support on Earth which undermines sustainable development. The disharmony of human society with its environment, which may lead our biosphere to an irreversible chaotic destiny, is universally recognized. Politicians and scientists strive for the mitigations of environmental damages but there is no consensus for the principal cause of the problems which is the global ethical recession.

This paper provides an overview of sustainability assessment by the "SAFE" methodology and an approach to the critical role of environmental ethics in the progress toward sustainable development. The proposed method is applied to a number of selected economies on national level. Results show that any country is following a sustainable path and the stumbling blocks vary from country to country. Critical analysis of the influence of environmental ethics in each sustainability component reveals that ethical recession might be the principal cause of all roadblocks toward sustainable development. Consequently, decision makers should give first priority to ethical reconstitution and then choose different strategies to make efficient sustainable decisions for each country.

The paper is organized as follows. Section 2 introduces the need for sustainability assessment and gives an overview of the SAFE model for purposes of self-containment. Section 3 discusses the proposed approach to sustainable decision-making. Section 4 provides some examples illustrating the application of sensitivity analysis to support sustainable decision-making. Conclusions and perspectives are given in Section 5.

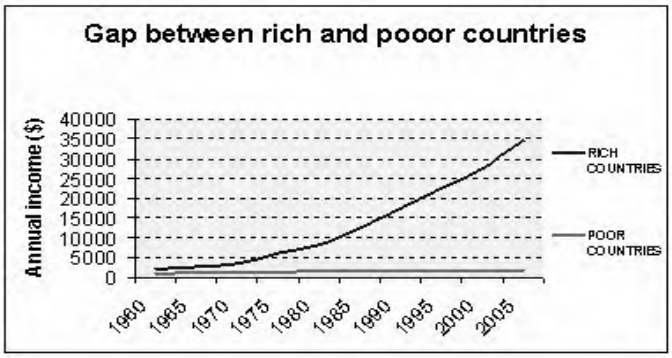


Fig. 1. **"The gap between the rich and the poor has reached the upper level of human history"**

2. Overview of the "S.A.F.E." model

2.1. Need for assessment of sustainable development and the "safe" methodology

The concept of sustainability has gained increasing attention among policy-makers and scientists, which culminated during the world summit in Rio in 1992 (*see* Appendix No. 1). Since then leaders from over 150 states committed themselves to undertaking actions, which will render future development sustainable but without scientific tools to guide policy-making towards a sustainable path [4]. Decisions leading to sustainable development require a pragmatic approach to assess sustainability based on good science and adequate information. The latter is provided in the form of data about environmental, social, and economical factors known as indicators of sustainability. Sustainable projects and optimal strategies for development necessitate answering four fundamental questions: "why unsustainable development occurs", "what is sustainability", "how can it be measured", and "which factors affect it" [5].

There is evidence that development is currently unsustainable. Ozone depletion, global warming, depletion of aquifers, species extinction, collapse of fisheries, soil erosion, and air pollution are among the obvious signs of ecological distress [6]. Human society is also showing similar signs such as poverty, illiteracy, health problems, AIDS, social and political unrest, and violence [7], [8]. ***The latter are principally due to the ethical problems***.

Fuzzy logic has been proposed as a systematic tool for the assessment of sustainability. Fuzzy logic is capable of representing uncertain data, emulating skilled humans, and handling vague situations where traditional mathematics is ineffective. Namely, ethical issues are not numerically quantifiable. Based on this approach, we have developed a model called SAFE (Sustainability Assessment by Fuzzy Evaluation), which uses basic indicators of human characteristics, environmental integrity, economic efficiency, and social welfare as inputs and employs fuzzy logic reasoning to provide sustainability measures on the local, regional, or national levels [9], [10].

2.2. Indicators of sustainable development

Sustainable development, as defined by the Brundtland report, is "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" [1]. Sustainable development is difficult to define but many researchers recognize that it is a function of two major components, ecological and human [11], [12], [13]. Therefore, sustainable decision-making should have two simultaneous goals: (a) Protection and improvement of the environment now and for the generations to come and (b) Achievement of human development to secure high standards of living.

Since the Earth Summit in 1992, an increasing number of researchers and international organizations began to consider "social sustainability", "economic sustainability", "community sustainability" and even "cultural sustainability" as parts of the human dimension of sustainable development [14], [15]. Thus, sustainable development ought to have environmental, economic, political, social, and cultural dimensions simultaneously [16].

The biblical version of the creation of the universe gives an insight of the ecological components of overall sustainability. According to Genesis ***Gen. 1: 1-8***, "WATER SUSTAINABILITY" revealed as the first basic component of overall sustainability and its establishment was finished during the second day of creation. Then, during the third day of creation, according to ***Gen. 1: 9-10*** "LAND SUSTAINABILITY" was completed as the second component of overall sustainability. In the same third day, "PLANTS SUSTAINABILITY" was completed according to ***Gen. 1: 1-13***. Then, according to Gen 1:14-19, "AIR SUSTAINABILITY" was completed during the forth day of creation. In accordance to ***Gen. 1: 20-25***, "ANIMALS SUSTAINABILITY" was the next – fifth component of overall sustainability. Finally, in ***Gen. 1: 26-31***, "HUMAN SUSTAINABILITY' was referred to as the sixth component of the overall sustainability. Figure 2 shows the interdependence between the six components of overall sustainability that was created during the six days of the divine Creation.

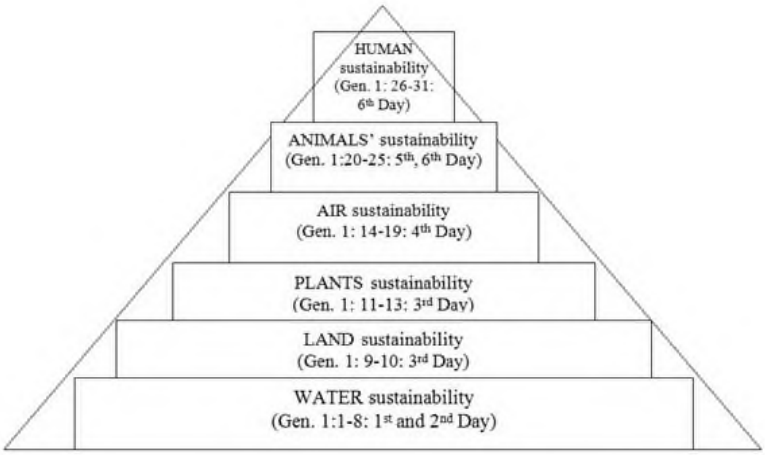


Fig. 2. **"Overall sustainability components** *vs.* **Biblical creation of the Universe (Genesis 1: 1-31)"**

According to the SAFE methodology, the overall sustainability of the system whose development we are asked to appraise has two major dimensions: ecological sustainability (ECOS) and human sustainability (HUMS). These will be referred to as the primary components of the overall sustainability (OSUS). The ecological dimension of sustainability comprises four secondary components: water quality (WATER), land integrity (LAND), air quality (AIR), and biodiversity (BIOD). The variables describing the human dimension of sustainability are political aspects (POLIC), economic welfare (WEALTH), health (HEALTH), and education (KNOW). Thus, sustainable development ought to have environmental, economic, political, social, and cultural dimensions simultaneously (Dunn *et al*., 1995).

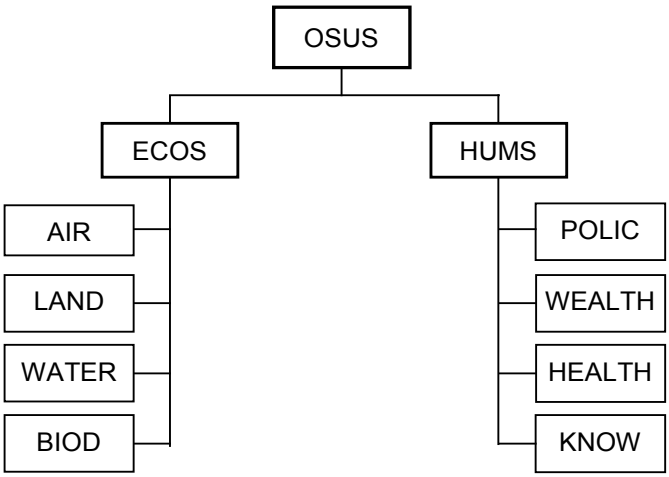


Fig. 3. **Dependencies of sustainability components**

For the explicit dimensions of overall sustainability *see* L. Andriantiatsaholiniaina *et al*. [1].

To evaluate the secondary components we adopt the Pressure-State-Response approach [17], which was originally proposed to assess the environmental component of sustainability (*see* Spangenberg and Bonniot [18] for a review and discussion of variants of this approach). Specifically, the SAFE model uses three quantities to describe each secondary component: PRESSURE, STATUS, and RESPONSE, called *tertiary components*. These tertiary components of sustainability are function of a number of called *basic indicators.* For example, the STATUS of biodiversity is an aggregate measure of the forest area and the numbers of plant, fish, and mammal species per square kilometer. PRESSURE is an aggregate measure of the changing forces human activities exert on the state of the corresponding secondary component. Finally, RESPONSE summarizes the environmental, economic, and social actions taken to bring pressure to a level that might result in a better state.

The indicators used in the SAFE model are given in Table 1. Statistical data for the basic indicators can be obtained from many sources, such as United Nations organizations, World Bank, World Resources Institute, etc. [7], [8], [19].

Table 1

Basic indicators* used in the S.A.F.E. model

Secondary Component	PRESSURE	STATUS	RESPONSE
LAND	(1) Commercial energy use (2) Solid and liquid waste generation (3) Nuclear energy (electricity) production (4) Population density ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	(5) Net energy imports (6) Domesticated land (7) Forest and woodland area	(8) Population growth rate (9) Primary (clean) energy production (10) Nationally protected area (11) Urban households with garbage collection ***(Env. Ethics) Preference for green energy, justice and love for nature***
WATER	(12) Water pollution (13) Urban per capita water use (14) Freshwater withdrawals ***(Spirituality and Ethics) ** Corruption, injustice, immorality, greed***	(15) Annual internal renewable water resources **Quality of water resources: biological oxygen demand, dissolved oxygen, nitrates, phosphorus, pH, etc.	(16) Percent of urban wastewater treated ***(Env. Ethics)** Respect of water sources, justice and wise use of water***
BIOD	(17-19) Threatened plant, fish, mammals species (20) Threatened frontiers forest ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	(21-23) Total number of plant, fish, mammals' species, etc. (24) Current forest	(25) Protected area (26) Annual deforestation – reforestation ***(Env. Ethics)** Respect and love for biodiversity***
AIR	(27) CO_2 emissions (28) Total CH_4 emissions from anthropogenic (29) Total N_2O **Percentage of ozone depletion **Other greenhouse and ozone-depleting gases emissions per capita and per surface land area (ozone, nitrogen oxides, SO_2, CO, etc.) ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	(30-34) Atmospheric concentrations of greenhouse and ozone-depleting gases: – CO_2 (ppm) – N_2O (ppb) – CH_4 (ppb) – SO_2 (mean annual µg/m^3 in urban air) – CFC-12 (chlorofluorocarbons) or CCl_2F_2 (dichlorodifluoro-methane) (ppt), etc.	(35) Fossil fuel use (36) Primary electricity production (37) Public transportation ***(Env. Ethics)** Preference for friendly environmental means of transportation*** ***(Env. Ethics)** Preference for green energy and love for nature***
POLIC	(38) Military spending (39) General government consumption (40) Murders (41) Human rights (42) Environmental laws and enforcement ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	(43) Regime (democratic-nondemocratic) (44) Institutional Investor Credit Rating (45) ICRG (International Country Risk Guide) risk rating (46) Central government finance	(47) Official development assistance (48) Government total expenditure for social services ***(Env. Ethics) ** Righteousness, compassion, sincerity, sympathy and love for nature and humanity***

Table 1 continued

Secondary Component	PRESSURE	STATUS	RESPONSE
WEALTH	(49) GDP implicit deflator (50) Imports (51) Private consumption ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	(52) Total external debt (53) GINI index (54) GNP (55) Resource balance	(56) GDP growth (57) Exports (58) Poor households ***(Env. Ethics)** Soberness, righteousness, sincerity and sympathy for humanity***
HEALTH	(59, 60) Cases of infectious diseases: measles, tuberculosis, AIDS**, etc. (61) Infant mortality rate (62) Maternal mortality rate ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	(63) Life expectancy (64-66) Percent of one-year-old infants immunized against measles, polio, DPT (diphtheria, pertussis and tetanus), etc. (67, 68) Number of people treated per doctor and per nurse	(69) Public health expenditure (70) Daily per capita calorie supply (71) Access to sanitation ***(Env. Ethics)** Soberness, righteousness, sincerity and sympathy for humanity***
KNOW	(72) Number of patent applications filled by non-residents (73) Number of libraries ***(Spirituality and Ethics)** Corruption, injustice, immorality, greed***	74, 75) Expected years of schooling, male, female (76, 77) Gross school enrollment ratio: primary and secondary	(78) Public expenditure on education (79) Number of patent applications filled by residents (80) Personal computer (81) Internet hosts (82) Number of scientists and engineers involved in research and development ***(Env. Ethics)** Sincerity, justice, sympathy and true love for nature and humanity***

***** Sources and explanations for indicators in World Bank [20, 21], World Resources Institute [22], and the International Helsinki Federation for Human Rights [23].

****** *Not taken into account in the examples because of lack of data for selected economies.*

2.3. Fuzzy assessment of sustainable development

Sustainable decision-making involves complex, often ill-defined parameters with a high degree of uncertainty due to incomplete understanding of the underlying issues. The dynamics of any socio-environmental system cannot be described by traditional mathematics because of its inherent complexity and ambiguity. In addition, the concept of sustainability is polymorphous and fraught with subjectivity. It is therefore more appropriate to use fuzzy logic for its assessment. Fuzzy logic is a scientific tool that permits to model a system without detailed mathematical descriptions, using qualitative as well as quantitative data. Computations are done with words and the knowledge is represented by IF-THEN linguistic rules.

The SAFE model uses a number of relevant knowledge bases to represent the interrelations and principles governing the various indicators and components of sustainability and their contribution to the overall sustainability. The rules and inputs/outputs of each knowledge base are expressed symbolically in the form of words or phrases of a natural language and mathematically as linguistic variables and fuzzy sets. Examples of IF-THEN rules used in the model are:

IF HUMS is *good* ***AND*** ECOS is *bad* ***THEN*** OSUS is *bad*;

IF POLIC is *very low* ***OR*** WEALTH is *very low,* ***OR*** HEALTH is *very bad* ***OR*** KNOW is *very low* ***THEN*** HUMS is *very bad*;

IF PRESSURE(HEALTH) is *weak* ***AND*** STATUS(HEALTH) is *medium* ***AND*** RESPONSE(HEALTH) is *weak* ***THEN*** HEALTH is *intermediate*.

The configuration of the SAFE model is shown in Figure 4. This model may be viewed as a tree-like network of knowledge bases. The inputs of each knowledge base are basic indicators provided by the user or composite indicators collected from other knowledge bases. By using fuzzy logic and IF-THEN rules, these inputs are combined to yield a composite indicator as output, which is then passed on to subsequent knowledge bases. For example, the third order knowledge base that computes the indicator LAND combines PRESSURE, STATUS, and RESPONSE indicators of land integrity, which are outputs of fourth order knowledge bases. Then, LAND is used as input to a second order knowledge base to assess ECOS. The overall sustainability is obtained from the first order knowledge base by combining the composite indicators of the primary components of sustainability, ECOS and HUMS.

The model is flexible in the sense that users can choose the set of indicators and adjust the rules of any knowledge base according to their needs and the characteristics of the socio-environmental system to be assessed (*see* Figure 4).

3. Sustainable decision-making – sensitivity analysis

In this section, we attempt to provide an answer to the question of how to achieve sustainability in a manner that could help decision makers to design a rational path towards it. To be able to design policies for sustainable development, one should have a tool for measuring sustainability and a tool for simulating sustainability scenarios. Without these tools, it is useless to formulate any policy for sustainable development, because not only is there no alternative way to assess the results of the policy, but also it is impossible to tell whether the society is on a sustainable path or not.

The SAFE model provides these prerequisite tools for the formulation of sustainable policies by assessing sustainability for different scenarios of development. A scenario is defined by a suite of sustainability indicators, which largely reflect the results of policies and actions taken in a particular period. When these values are changed and the resulting changes on sustainability observed we could identify the most important indicators promoting or impeding progress toward sustainable development. This procedure is known as sensitivity analysis. The next step is to recommend future policies and actions that would increase or decrease the values of the indicators identified as promoting or impeding, respectively.

In this paper, suggestions regarding the values of indicators are restricted to tendency terms (“increase” or “decrease”). Assigning quantitative values is another bigger issue, not dealt with in this work. This would require the formulation of a constrained optimization problem and is the subject of future research.

Sensitivity analysis plays a fundamental role in decision making because it determines the effects of a change in a decision parameter on system performance. Additionally, since most decisions regarding sustainable development involve groups of experts, politicians and individuals, often with uncertain criteria and conflicting interests, sensitivity analysis could be used to investigate the dependencies of sustainability components on particular policies and decisions [24].

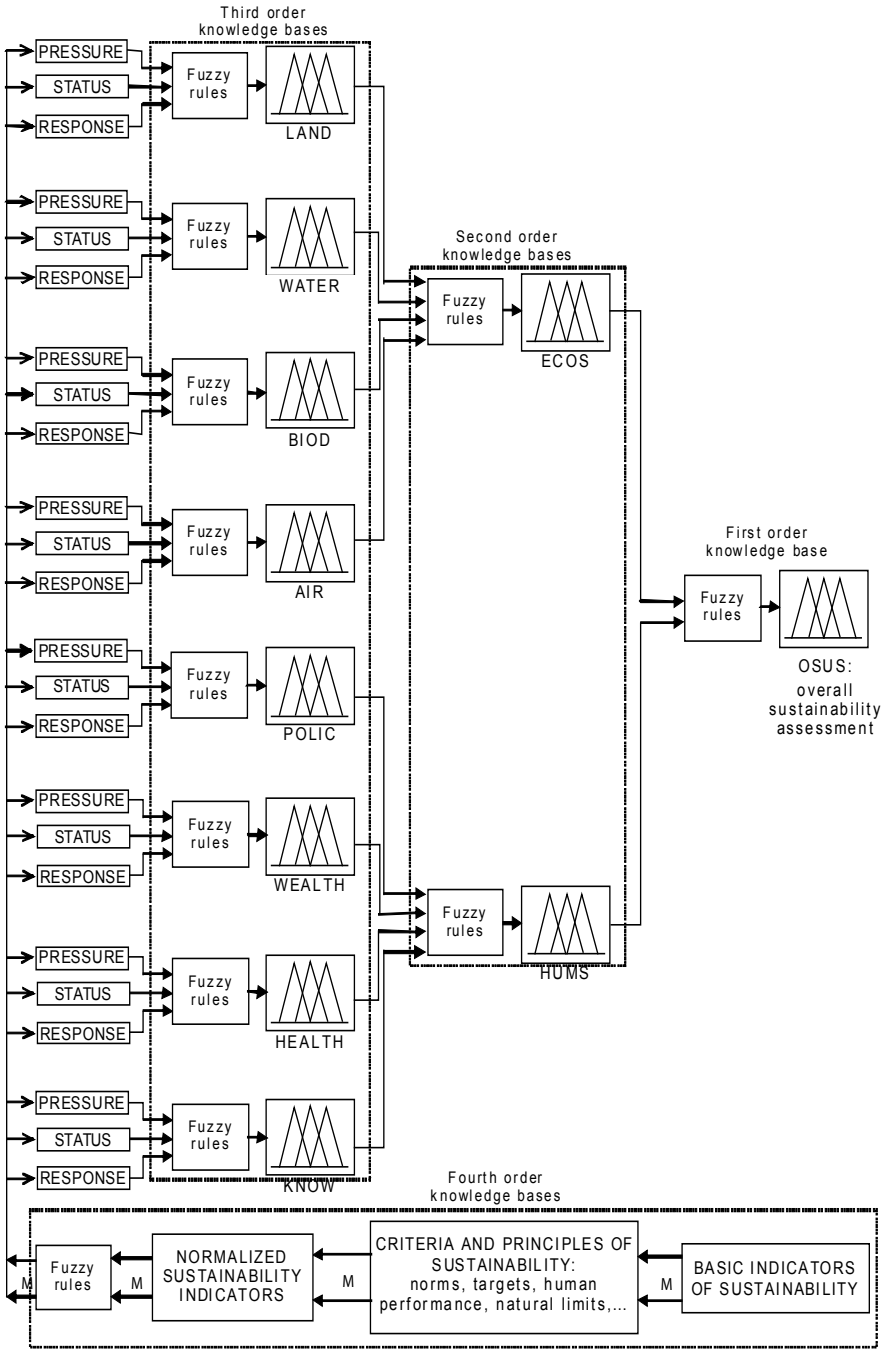


Fig. 4. **Configuration of the *Figure* model**

As discussed in Section 2.3, the SAFE system is a tree-like network of knowledge bases. Mathematically, any primary component of sustainability (ECOS, HUMS) or the overall sustainability can be expressed as a composition of functions each of which is a composition of other functions and so on.

The key variables involved in this representation are the basic indicators used as inputs in the fourth order knowledge bases. Sensitivity analysis entails the computation of the gradients (partial derivatives) of ECOS, HUMS, and OSUS with respect to these basic indicators. Although each knowledge base has its own rule base and uses different inputs, all knowledge bases are equipped with the following components: (a) a normalization module, (b) a fuzzification module (c) an inference engine, and (d) a defuzzification module [10], [25].

4. Application of the safe model to sustainable decision-making

We now provide some examples illustrating the application of sensitivity analysis to support sustainable decision-making. Sensitivity analysis pinpoints those parameters th`at affect sustainability critically. Policy makers then should take proper corrective actions in these critical directions. We examine two countries: Greece and USA. We compute the primary components of sustainability and their sensitivities to various input indicators. We make the following remarks:

1. If the derivative with respect to a basic indicator is negative, then we classify this indicator as *impeding* because an increase of its value will reduce the degree of sustainability.
2. If the derivative is positive, then the indicator is classified as *promoting* because an increase in its value will lead to higher sustainability. Impeding and promoting indicators are crucial in establishing the best practices towards sustainability.
3. When the derivative is zero, the indicator is classified as *neutral* and policy makers could ignore it when recommending short-term policies.

According to the results of sensitivity analysis and the target for each indicator, we may design policies to advance ecological, human, and overall sustainability by

1. proposing mechanisms and projects to improve promoting indicators,
2. taking precautionary measures to correct impeding indicators, and
3. adopting conservative actions for neutral indicators.

In a previous paper [10], we used 57 basic indicators to assess the sustainability of 15 selected countries. The results showed that all economies were unsustainable. As the flexibility of the model permits the use of more indicators, in our following paper [9] we use 82 indicators and perform sensitivity analysis in order to evaluate strategies for sustainable development. We restricted our attention to just two economies, Greece and USA, because of the availability of data and authors' personal knowledge of the prevailing political and social conditions in these two countries. The latter is very important because the SAFE model takes into account subjective evaluations concerning human rights, democracy, law enforcement, etc. Data concerning basic indicators were taken from World Bank [20], [21], World Resources Institute [22], and International Helsinki Federation for Human Rights [23]. Due to correlations and availability of data, we use up to five indicators to evaluate Pressure, Status, or Response (see Table 1). Details about correlation method and selection of indicators used in the model can be found in Phillis and Andriantiatsaholiniaina [10].

To achieve sustainable development, a balanced and continuing improvement of the four components of ECOS (LAND, WATER, BIOD, AIR) and the four components of HUMS (POLIC, WEALTH, HEALTH, KNOW) is needed. Thus, a prerequisite for promoting overall sustainability is the detection of critical indicators that affect the value of ECOS, HUMS, and OSUS, or influence the value of LAND, WATER, BIOD, AIR POLIC, WEALTH, HEALTH and KNOW.

In general, policy makers should be able to identify the factors that promote or impede progress towards sustainability and obtain quantitative information about them. Each sustainability variable is a function of a number of basic indicators. Thus, for a given country or ecosystem, sustainable decisions should be based on assessments concerning the contribution of each indicator to the final value of ECOS, HUMS, and OSUS. Using these assessments policy makers could set priorities for critical (promoting or impeding) indicators on which future policies should focus.

According to the SAFE sensitivity results, sustainable policies in Greece should depend on enhancing the following thirteen ***promoting factors*** and decreasing the following six ***impeding factors*** ranked in order of importance (*see* Table 2):

Table 2

Critical indicators of sustainability for Greece

Promoting factors	*Impeding factors*
1. (46) Central government finance, 2. (42) Environmental laws, 3. (74-75) Expected years of schooling (male/female), 4. (37) Public transportation, 5. (16) Urban wastewater treated, 6. (77) Secondary ratio schooling, 7. (45) International Country Risk Guide (ICRG) risk rating, 8. (69) Public health expenditure, 9. (55) Resource balance, 10. (26) Protected area, 11. (15) Internal renewable water resource, 12. (22) Total number of fish species.	1. (51) Private consumption, 2. (1) Commercial energy use, 3. (13) Urban water use per capita, 4. (14) Freshwater withdrawals, 5. (79) Number of patent applications filled by non-residents, 6. (27) CO_2 emissions.

5. Environmental ethics and Sustainable policies

Broadly speaking, sustainable policies should focus on the ecological and human system. Moreover, there is no unique path towards sustainability and policy makers should choose different strategies in different countries. We notice that overall sustainability for many countries depends essentially on ecological factors. This is in accordance with the common belief that says that environmental damages undermine development sustainability [5], [10] but the crucial target is to determine the principal blockades or limiting factors that hamper sustainable policies to be effective. Only if there is a clear indication of the limiting factors for the viability of sustainable development, we may tackle environmental and human problems.

Returning to our case studies, the critical sustainability factors for Greece are principally environmental, namely land system improvement (LAND), water system sustainability (WATER), biodiversity conservation (BIOD) and air quality improvement (AIR). However, socio-political (POLIC), economic (WEALTH), and educational factors (KNOW) also play an important role in improving sustainability in Greece.

For LAND sustainability in Greece, we notice that the high amount of Commercial energy use which is dependent on the use of imported fossil fuels is one of the most crucial factors. The use of green energy or renewable fuels as a response to the problem of LAND sustainability encounters ***practical ethical problems***. Despite of the "apparent" sensitization of the people, the consumption of fossils fuels is increasing continuously. Following the example of the northern American societies, Greek families tend to have in average 2 to 3 cars and the use of more polluting "SUV" or "4X4" cars is considered as a sign of prosperity. On the global scale, we notice the same phenomenon. From 2004, the world consumption of fossil fuel for transportations is continuously increasing from ~ 2 milliard tons (corresponding to ~5,2 milliard tons of CO^2 emissions) to ~ 2,8 milliard tons in 2030 (forecast of the World energy Outlook, 2006). Moreover car accidents kill around 3 000 persons per day (Health World Organization, 2004). Why couldn't we reduce the world consumption of fossil fuel? The answer, which seems to be a difficult dilemma, is simple but disturbing: ***the global ethical recession*** or the global decline of love for others and for nature. Generally, people don't believe in environmental risks and there is an obvious sign of lack of respect for the nature in the contemporary way of life. Car builders continue to produce higher consumption cars and give the least concern about the promotion of less polluting vehicles. Knowing that airplanes are the most polluting means of transportation, the number of air travelers is increasing six times from 1970 to 2004 (from ~300 million passengers in 1 970 to ~ 1 900 million passengers). The phenomenon is boosted by the so called low-cost e-tickets companies (World Development Indicator, 2007). Why couldn't we reverse this trend toward a cleaner means of transportation? The limiting factor is the ethical blockage resulting from economical greed.

Without knowing it, practically, people may become spiritually blind worshipping "Mammon" instead of God (*see* Luke 6:13). And when people stop worshipping God, they are doomed to destruction and the entire Earth is cursed because of them (Rom. 8:23). The influences of religions on daily life become marginal and human activities are no longer restricted by ethical consciousness. As a result, the conservation of life support on Earth and the viability of sustainable development become the most complicated and alarming challenges for the generations to come.

6. Conclusions and perspectives

Policy makers need a scientific tool to forecast the effects of future actions on sustainability and establish policies for sustainable development. In this paper, we use a previously developed model, called SAFE, in an attempt to provide an explicit and comprehensive description of the concept of sustainability. Using linguistic variables and linguistic rules, the model gives quantitative measures of human and ecological sustainability, which are then combined into overall sustainability. A sensitivity analysis of the SAFE model permits to determine the evolution of sustainability variables subject to perturbations in the values of basic indicators. Then, the problem of sustainable decision-making becomes one of specifying priorities among basic indicators and designing appropriate policies that will guarantee sustainable progress.

Successful policies differ from country to country. More developed countries need to focus mostly on the degradation of their environment whereas less developed countries should strive to improve both the environment and the human system.

Decision makers should stop confronting environmental problems with solely technological and political solutions. Religions and environmental ethics revival must be given the highest priority because of their unique ability to control overall human activities and, therefore, to secure sustainable behavior.

The SAFE approach provides new insights of sustainable development and it may serve as a practical tool for decision-making and policy design at the local or regional levels. Assessment of ethical values and, specifically, environmental ethics is the next necessary step to improve the SAFE model. Conceptual environmental ethics inputs and daily facts from case studies affirm the limiting role of environmental ethics in the progress toward sustainable development. Such approaches are urgently needed nowadays if we want to attack the problem of sustainable development systematically.

7. Acknowledgements

I would like to thank the Foundation for Research and Technology, Hellas (FORTH – IMBB) and the Orthodox Academy of Crete (Institute of Theology and Ecology) for their trust and financial support. Also credits are due to the State Scholarship Foundation of Greece (I.KY.) and the Technical University of Crete for their initial funding of this research.

REFERENCES AND BIBLIOGRAPHY

1 WCED (World Commission on Environment and Development). (1987) *Our Common Future*. Oxford: Oxford University Press.

2 UNCED (United Nations Conference on Environment and Development). (1992) *Agenda 21*. New York: UNCED.

3 World Bank. (2007) [online] *How we Classify Countries*. Available: http://go.worldbank.org/K2CKM78CC0

4 HMSO (Her Majesty's Stationery Office). (1994) *Sustainable Development: The UK Strategy. Cm 2429*. London, UK: HMSO.

5 Atkinson G., Dubourg R., Hamilton K., Munashinge M., Pearce D. and Young C. (eds.) (1999) *Measuring Sustainable Development: Macroeconomics and the Environment*. 2nd ed., Northampton: Edward Elgar.

6 Brown L. R., Flavin C., and French H. (2000) *State of the World 2000*. New York: Norton.

7 IUCN / UNEP / WWF (International Union for the Conservation of Nature / United Nations Environment Program / WorldWide Fund for Nature). (1991) *Caring for the Earth: A Strategy for Sustainable Living*. Gland, Switzerland: IUCN.

8 UNEP (United Nations Environment Programme). (1992) *Caring for the Earth: A Learner's Guide to Sustainable Living*. New York: United Nations.

9 Andriantiatsaholiniaina L. A., Kouikoglou V. S., and Phillis Y. A. (2004) Evaluating strategies for sustainable development: Fuzzy logic reasoning and sensitivity analysis. In: *Ecological Economics*, Vol. 48, No. 2, pp. 149-172.

10 Phillis Y. A. and Andriantiatsaholiniaina L. A. (2001) Sustainability: an ill-defined concept and its assessment using fuzzy logic. In: *Ecological Economics*, Vol. 37, pp. 435-456.

11 Pearce D. W. and Turner R. K. (1990) *Economics of Natural resources and the Environment*. Baltimore: Johns Hopkins.

12 Milon J. W. and Shorgen J. F. (eds.). (1995) *Integrating Economic and Ecological Indicators: Practical Methods for Environmental Policy Analysis*. Westport, CT: Praeger Publishers.

13 Rauch W. (1998) Problems of decision making for a sustainable development. In: *Water Science and Technology*, Vol. 38, No. 11, pp. 31-39.

14 Hardoy J. E., Mitlin D. and Satterthwaite D. (1992) *Environmental Problems in Third World Cities*. London: Earthscan Publications.

15 Pugh C. (ed.). (1996) *Sustainability, the Environment and Urbanization*. London: Earthscan Publications.

16 Dunn E. G., Keller J. M., Marks L. A., Ikerd J. E., Fader P. D. and Godsey L.D. (1995) *Extending the application of fuzzy sets to the problem of agricultural sustainability*. IEEE Proceedings of ISUMA-NAFIPS '95, Missouri-Columbia, USA, pp. 497-502.

17 OECD (Organization for Economic Co-operation and Development). (1991) *Environmental Indicators, a Preliminary Set*. Paris.

18 Spangenberg J. H. and Bonniot O. (1998) Sustainability indicators: a compass on the road towards sustainability. In: *Wuppertal Paper*, No. 81, ISSN No. 0949-5266.

19 Prescott-Allen R. (1995) *Barometer of sustainability: A method of assessing progress towards sustainable societies*. Victoria, Canada: PADATA; Gland, Switzerland: IUCN.

20 World Bank. (1997) *World Development Report 1997: The State in a Changing World, World Development Indicators*. Washington, DC: Oxford University Press.

21 World Bank. (1998) *World Development Report 1998/99: Knowledge for Development*. Washington, DC: Oxford University Press.

22 World Resources Institute, United Nations Environmental Program, United Nations Development Program, and the World Bank (1998). *World Resources 1998-99: Environmental Changes and Human Wealth*. Washington, DC: Oxford University Press.

23 IHF (International Helsinki Federation for Human Rights). (2001) *Human Rights in the OSCE Regions: The Balkans, The Caucasus, Europe, Central Asia and North America. Report 2001 (Events of 2000)*. Bratislava, Slovakia: International Helsinki Federation for Human Rights and IHF Research Foundation.

24 Hersh M. A. (1999) Sustainable decision making: the role of decision support systems. In. *IEEE Transactions on Systems, Man, and Cybernetics – Part C: Applications and Review*, Vol. 29, issue no. 3, pp. 395-408.

25 The MathWorks Inc. (1995) *Fuzzy Logic Toolbox User's Guide* (24 Prime Parkway, Natick, MA 01760-1520). *See:* http://www.mathworks.com/

Vides ētika: ilgtspējīgas attīstības ierobežojošie faktori

Kopsavilkums

Ir vispāratzīts, ka cilvēka rīcības ietekme uz apkārtējo vidi, kā arī ieilgusī ekoloģiskā krīze var novest planētu līdz neatgriezeniskam haotiskam liktenim. Politiķi un zinātnieki cenšas rast risinājumus, kā novērst videi radītos zaudējumus, taču nepastāv vienprātības par problēmu cēloņsakni un iespējamo dziedniecisko līdzekli: globālo ētisko pagrimumu. Dzenoties pēc ātri gaistoša ekonomiskā progresa *homo sapiens* pakāpeniski ir pārveidojies no *homo religiosus* par *homo economicus*. Ģimenes koncepts ir reducēts līdz tās minimālajam ekonomiskajam kontekstam un sociālais netaisnīgums ir pārsniedzis jebkuru robežu. Plaisa starp bagātajiem un nabagajiem ir sasniegusi augstāko līmeni visā cilvēces vēsturē. Reliģiju ietekme uz ikdienas dzīvi ir kļuvusi margināla un cilvēka rīcību vairs neierobežo ētiskā apziņa. Tā rezultātā dzīvības atbalsta sistēmu konservācija uz zemeslodes un ilgtspējīgas attīstības dzīvotspēja kļūst par vissatraucošākajiem izaicinājumiem 21. gadsimtam.

Rakstā piedāvāts ilgtspējīgas attīstības izvērtēšanas modelis ar nosaukumu "Ilgtspējības novērtējums, lietojot faziloģisko izvērtējumu" (S.A.F.E.). Aplūkotā S.A.F.E. modeļa rezultāti kopā ar atsevišķu piemēru analīzi nacionālā līmenī atklāj, ka vides ētika satur nozīmīgu "atbildes" indikatoru grupu, kas var kontrolēt vispārējo ilgtspējības attīstību.

Faziloģikas lietojums ilgtspējības novērtēšanā ir būtisks, jo vides ētikas indikatori nav mērāmi skaitliskā veidā. Secinot jāsaka, ka lēmumu pieņēmējiem ir jāpārtrauc konfrontēt vides problēmas tikai ar tehnoloģiskiem un politiskiem risinājumiem. Reliģiju un vides ētikas atdzimšanai jāpiešķir augstāko prioritāti, jo tā spēj kontrolēt cilvēka rīcību un tāpēc nodrošināt ilgtspējīgu uzvedību. Konkrēti runājot, kristietība, kura māca beznosacījumu mīlestību pret "tuvāko", kas var būt cilvēks un arī ne cilvēks, var aktīvā veidā stiprināt ilgtspējīgas uzvedības praksi un novērst neilgtspējīgo modernās sabiedrības iestaigāto ceļu.

Atslēgas vārdi: ilgtspējīga attīstība, faziloģika, vides ētika, kristietība

Ph.D. **Lucas Andrianos**
(Luc Aurelien Andriantiatsaholiniaina)

Orthodox Academy of Crete,
Institute of Theology and Ecology

Address: Kolymvari, Chania, 73006, Greece

Phone: +30 28240 22500; +30 6972414489 (cell ph.)

E-mail: luc_andrian@yahoo.gr; laoac@otenet.gr

A Christian Ecological Ethics with Special Reference to Human Stewardship of God's Creation

Kristīgā ekoloģiskā ētika ar īpašu atsauci uz cilvēka kalpošanu Dieva radības kontekstā

Bjørn Øyvind Fjeld, Dr. min. (Norway)

A Christian Ecological Ethics attempts to understand and describe the human challenge related to the ongoing global ecological crises from a Christian perspective and based on a Christian worldview. The discussion implies a special reference to the Stewardship of God's Creation and puts focus on the human possibility to act properly and the human responsibility for future generations. The author discusses different understandings of environmental ethics, i.e. what in creation is morally relevant? Based on a Christian ecological ethics, he defends the intrinsic value of all creation, with a particular emphasis on the dignity of the human being. The concept of intrinsic value is discussed in the light of moral philosophy and theological ethics. Furthermore, the author argues that a proper stewardship of the biosphere and the ecosphere can be carried out only by humans. This involves a theological discussion of biblical anthropology and God's purpose in creation, including the meaning of human activity in regard to the final outcome of the promised new earth. The main challenge, however, is to move beyond the level of analysis and substantiate how to implement practical actions, on the political, personal and global level. This moral and theological issue is related to concepts as the image of God, cultural mandate, freedom of will, sin and the human ability to, in time, act ethically responsible. A Christian contribution to an Ecological Ethics is based on the experience of the sacrificial love of the crucified, and the transforming power of the risen Lord, Jesus Christ and The Holy Spirit. Being a new creature in Christ is the Christian ontological-anthropological foundation for a global Christian ethics, i.e., normative ethics applicable to all mankind, according to which both Christian and all people of good will should live and act toward God's creation in a responsible and sustainable way.

Key words: ecological ethics, image of God, cultural mandate, stewardship, virtues and vices

Introduction

An ecological ethics encompasses how to cultivate and take care of the biosphere and the ecosphere, as well as the material entities beyond biotic life. Biosphere and ecosphere are respectively defined as "the part of the earth's crust, waters and atmosphere, where living organisms can subsist" (biosphere) and "the part of the atmosphere in which it is possible to breath normally without aid; the portion of the troposphere from sea level to an altitude of about 13 000 feet" (ecosphere, also called physical atmosphere) (Webster's Encyclopedic Unabridged Dictionary, 149 and 452). The cultivation of the earth should be performed in such a way that both humanity and all creatures on a global scale can be secured by a sustainable development in the future. A Christian ecological ethics deals with this challenge from a theological and biblical perspective. The last decades the term ecotheology[1] has been introduced as a new concept. The term Christian ecological ethics overlaps with the concept ecotheology, albeit the latter has a broader scope than the former.

Fifty years ago, Rachel Carson's book *Silent Spring* (1962) raised the first serious questions related to ecological issues. With reference to the fast growing industrialisation and the increased focus on economic and financial growth, she asked the provocative question whether the scientific development had gone too far. Had pollution passed beyond the point of no return with threatening consequences for the future of the globe? Today scientists from many disciplines in general and the Climate Panel of the United Nations in particular issue alarming warnings that the climate change represents a serious threat to the future well being of creation.

My task in this essay is to describe, analyse and discuss the challenge related to the climate changes and the ongoing global ecological crises, based on a Christian worldview and with a special reference to human stewardship. A general definition of stewardship is to manage "another's property [..]" and to administer "anything as the agent of another or others" (Webster's Encyclopedic Unabridged Dictionary, 1395). In this article I will use the following definition of Christian stewardship of nature: The human management of God's creation performed in accordance with God's will.

My analysis is an attempt to address and assess a proper stewardship of creation. This includes first an examination of what is the object of stewardship, i. e. what is morally considerable, in general, and Christian stewardship in particular. This assessment will be made in terms of an analysis of the intrinsic value of creation and the dignity of humans. The second main issue relates to the subject of stewardship, i.e., who is the stewards, a question which requires an interpretation of the biblical creation events. Thirdly, I put focus on Christian anthropology and Man's possibility to act in co-operation with the Creator. This includes a discussion about God's sovereignty and human free will, as well as a discussion about open theism. Lastly I will discuss the issue of how to implement a Christian stewardship. This includes a discussion of the motivation and possibility to act properly, i.e., the issue of obeying God's plan in time to avoid a future devastation of the Earth.

Christian stewardship in light of the intrinsic value of creation

Most people have moral views about environmental issues. These views are based on one or several moral principles. Some will argue that the extinction of certain species or a destruction of nature always will be wrong in itself. Others will argue that human actions are wrong because of their consequences. Both arguments are

reasons behind different understandings of the manifold international efforts to secure the integrity of creation in general, for example by establishing a growing number of National Parks worldwide[2] or by providing solutions for a sustainable development worldwide[3].

The ethicist Robert Elliott raises a basic question: What is morally considerable? He develops his answer by raising two new questions: How do we describe an environmental ethics and how do we justify our principles? (Elliott, 2002, 285) Elliott numbers four relevant types of ethics: human-centred, animal-centred, life-centred and "everything" ethics. The latter includes also ground and rocks. The first type is most often based on utilitarian theories, taking maximum human happiness and the interests of human alone as the ethical point of departure for evaluating environmental policies[4]. The animal-centred ethics is based on the interest of living non-human creatures, not only for their utility for humans, but also for their own intrinsic value. That something has intrinsic value means that it has value in itself and that it should be conserved for its own sake. On the contrary what has only extrinsic or instrumental value serves as a means to attain what has intrinsic value. That animals have intrinsic value does not mean that all animals are of same value or are to be equated to humans. The life-centred ethics counts all living entities, additional to humans and animals, like plants and vegetation, as morally considerable. This includes also the biosphere itself and whole ecosystems.

Elliott responds to his second question about how to justify the basic principles of an environmental ethics, by stating that both the human centred ethics and the animal centred ethics attribute intrinsic value to humans as well as to animals. He defends that also a life centred ethics considers all lives as having intrinsic value. Plants do not have interests like humans and animals, but they may still carry properties like beauty, complexities and uniqueness, which have intrinsic values. The same types of arguments related to properties can also be used to defend the moral value of non-living things like a snowflake or a rock.

Elliott concludes by trying to find a determinant of moral considerability, like the property of being a natural object, different from products of technology or human culture. Pointing to naturalness, diversity of parts and beauty as such determinants, he states that he has provided a basis for an environmental ethics which reaches beyond the human and animal centred ethics and "possibly beyond a life-centred one as well" (Elliott, 2002, 292). Elliott gives nature preference over culture. His determinants are defined as creatures, humans and non-humans, with intrinsic values. Elliott accepts a possible grading among different creatures but, in principle, are all creatures on earth, living and non-living, morally considerable.

Elliott's position can easily be defended, in regard to the intrinsic value of all parts of creation, as well as to his grading of the intrinsic value between and within the different groups of creature.

The Norwegian philosopher Arne Naess represents a radical life-centred ethics, named biotic egalitarianism, i.e., advocating not only that all living things are morally considerable, but that they are of equal moral significance. Naess introduced the concept of deep ecology[5], in contrast to shallow ecology, the latter meaning to defend an egoistic and consumer oriented lifestyle. His position allows only quantitative, not qualitative, judgements, i.e., two living things count for more than one. This is a different position from most life-centred ethics that allows different values within a group of living things (Elliott, 2002, 288). "Everything ethics" may also give an

equal moral value to rocks and deny degrees of moral significance to non-living things, but the most common of the latter position allows for a gradation of moral values.

Professor of Philosophy, Daniel Holbrook, takes a different position. He rejects both a religious and a deep ecology point of departure for justifying environmental activism. His ethical theory is based on "ideas of welfare (or well-being) and consequentialism [..] which only takes human welfare into account" (Holbrook, 1990, 131f). He sets up a range of eight necessary conditions for justifying progressive levels of welfare from an egoistic view to "the welfare of the ecological systems taken as a whole". These are: 1) myself and my family, 2) my community, 3) citizens of developed nations, 4) humanity, 5) beings capable of self-consciousness, 6) beings capable of pleasure and pain, 7) all living things and 8) the biosphere/the Solar system.

Holbrook rejects both Naess' concepts of deep ecology and what Naess calls shallow ecology. The former term "roughly coincides" with Holbrook's precondition eight, while the term "shallow ecology" corresponds to "being near the third level of this progression" (Holbrook, 1990, 132), i.e., precondition one, two and three above. Holbrook emphasizes the preconditions in between (4-7) and states that humanity is clearly part of nature, but rejects the principle "that intrinsic worth is determined at the level of ecological systems" (Holbrook, 1990, 134). His highest value and emphasis are on humans and the welfare of humans alone. His conclusion is that the issue of ecology should not be based on deceptive ideologies that is "environmental propaganda and scare tactics" but on a reinforcement of conservative values, explained as "scientific facts" and "the logical outcome of desires that come naturally to humans" (Holbrook, 1990, 141).

The positions and discussion above must be evaluated and compared with the hierarchical thinking about the heavenly and earthly entities, which are found both among philosophers of the Greek antiquity and theologians in the early and medieval church. I will briefly examine Aristotle's (384-322 B.C.), Origen's (185-254 A.D.), Augustine's (354-430 A.D.) and Thomas of Aquinas' (1225-1274) metaphysical thinking on this issue.

Among the early Greek philosophers there were several answers regarding how to understand reality, in particular related to the structure and the basic substance (Gr. *ousia*) of cosmos. Most of the thinking was hierarchical, from the higher to the lower entities. In his hierarchical metaphysics, Aristotle gave the invisible and unchangeable (the immovable mover) the highest value. Number two was the visible and imperishable substances (the moon, sun and stars) and the third level in the hierarchy was the visible and perishable substances, which includes living substances like humans, animals and plants, and non-living substances like stones and mountains. The Greek philosopher valued humans above plants and animals due to the human soul and the human ability of thought and reason. These abilities were the justification for making man responsible in terms of ethics (Tollefsen *et al*., 2002, 123-139).

The Augustinian hierarchical structure of creation builds upon Plato's and Aristotle's thinking. However, in sharp contrast to Greek philosophy, according to Augustine, God created cosmos out of nothing (Lat. *ex nihilo*). The Greeks mostly held that the world existed from eternity. Still, creation was as an expression of God's eternal plan, (*cf.* Plato's world of ideas). The theory is named exemplarism. However, in contrast to Plato's thinking, Augustine emphasised the incarnation of the eternal God in Christ. Nevertheless, also for him creation of the world was organised from a higher to

the lower levels: 1) God, 2) angels, 3) humans 4) animals 5) plants and 6) non-organic realities. God was the great Creator of universe, still he became a human himself. In this way, God was both transcendent to and immanent in creation. (Tollefsen *et al*., 2002, 188-191).

The theory of exemplarism was in opposition both to a atomism, an early Greek theory stating that the basic substance consisted of continually material processes (Democritus), and the theory that everything was fleeting and changing without any plan or purpose, (Gr. *panta rei:* Heraclitus). Early Christian theologians and philosophers were in agreement in their opposition to this tradition of ancient Greek understanding of cosmos. Already two centuries before Augustine, Origen (185-254 A.D.) developed a creation theory with a special emphasis on creation as coming forth from God and ultimately going back to God. The emphasis was further developed by the Cappadocian fathers and taken to its peak by St. Maximus the Confessor (580-662 A.D.). He advocated that certain divine ideas (energies) were found in the form of all created things and during the course of time all things will be brought back to God and completed in him according to *exitus et reditus.* This salvific event will be fulfilled through Christ and his Church. A teaching about the close relation between cosmology, salvation and deification has through many centuries characterized the Eastern traditions and Orthodox theology up until today (Tollefsen *et al*., 2002, 178-179). I will later return to this question.

The Augustinian concept of God's eternal plan, having the archetype of everything in his mind (exemplarism), is also defended and further developed by the western church, e.g. by Thomas of Aquinas. The concept implies that all created entities originated in God's thought and consequently that all parts of creation have an intrinsic value. "God loves all existing things" (*Summa Theologica*, pt. I, q. 20, art. 2)[6]. Thomas adds some hierarchical levels, i.e., heavenly bodies are of a higher value than earthly bodies, and he introduces anew the Aristotelian difference between completeness, which alone is ascribed to God, and the cosmological incompleteness. The teleological concept implies that all parts of cosmos are constantly striving towards the divine completeness. The human task therefore, is to bring everything closer to the divine completeness as originally created and embodied in the Garden of Eden. This means that creation should not be exploited, but cared for and protected (Tollefsen *et al*., 2002, 227-235).

A common Christian understanding of God's creation was already expressed by the Early Church in the Apostolic Creed: *I believe in God, the Father Almighty, maker of heaven and earth*. It is even more precisely expressed in the Nicene Creed (325): *We believe in one God, the Father, the Almighty, maker of heaven and earth, of all that is, seen and unseen*[7]. The first article of these two different Creeds reflects creation as an activity linked to God the Father. The creative act itself is seen as an expression of the ontological truth that the world belongs to God and that all creation has intrinsic value. Likewise, the atoning work of salvation is linked to Jesus Christ, while the divine power and giving of life is related to the Holy Spirit. The three articles of faith reflect the triune God, not as three separate entities, but as different persons and activities within the triune God.

To sum up so far: The shallow ecology illustrates an unacceptable ethics which is egoistic and short-term oriented. The ethics of deep ecology is unacceptable due to its rejection of qualitative judgments. Holbrook's welfare point of departure is commended because it emphasizes the value of all living things. However, Holbrook's

position cannot be defended due to his denial of the intrinsic value of humans and other beings. For Holbrook, worth and values are not based upon life alone, but upon a utilitarian perspective of life.

Elliott's ecological point of departure and his four types of ethics have several similarities with the Aristotelian level of all living and non-living substances. The hierarchical structure and value of Christian theologians comprise the same categories as Aristotle and Elliott. This common view aligns the intrinsic value of humans, animals, plants and "everything ethics", even though the grading of values may differ among and within these creatures. However, as pointed out by several of the theologians, humans have an added value because they are created in the image of God. Later I will discuss the issue further, but here I want to underline the fact that this added value gives humans dignity and worth, making them qualitatively different from other creatures. The philosopher Immanuel Kant emphasizes the same dignity when he asserts that humans are priceless and therefore they should never be reduced to means. Humans should always be treated as an end in itself (Aasen *et al*., 2009, 22-25).

From a theological point of view the value issue of creation means that humans, all living creatures and non-living nature have intrinsic worth, are morally considerable and are objects of human stewardship of God's creation. I have also shown that most of the creatures for stewardship are overlapping whether there is a philosophical or a Christian basis for an environmental ethics. However, a Christian ecological view adds that humans have a particular dignity, which also gives them a particular responsibility. I will now move on to discuss more exactly who the responsible agents are and how the stewardship of God's creation should be performed. This brings us to the creation stories of the Old Testament.

Christian stewardship in light of the view of God, biblical anthropology and the cultural mandate

According to Christian theology, the concept of being created in the image of God defines the human nature as justifying its own intrinsic value, Gen. 1: 26-28. However, it is not easy to give a precise and accurate definition of what this means in practice.

A working group of the Lausanne movement presents three different interpretations of the expression "being created in God's image". The *substantial* view implies that the image of God is imprinted on a person similar to an image on a coin, i.e., the human nature reflects God and therefore has an intrinsic value, differently from all non-humans. The *relational* view is dynamic, a more intangible kind as the one we see in a mirror, i.e., determined by relations, fellowship and the notion of the image as a future possibility. The third interpretation is the *functional* view which emphasizes personhood more than humanity, i.e., the capacities of humans, such as intellectual capacity or decision making capacity. The functional view "holds that the image of God is found in the exercise of 'dominion' and 'stewardship' of the rest of the creation" (Chia *et al.*, 2004, 4). The latter view implies that not all humans may qualify as persons, while some non-human animals might. (*Cf.* Holbrook's view referred to above). One interpretation of the relational view may also imply that some humans are excluded as image-bearers, "namely those who seem incapable of relationships" (Chia *et al*., 2004, 5-6).

My focus is limited to humanity's relationship to creation, i.e., the relation between the Creator and humans, the Creator and other living and non-living creatures and the relation between the humans and the rest of creation. In the first creation story, all the earth and its creatures are declared to be good, an expression which usually is taken as a valid justification that all created things have intrinsic value. The phrase "and God saw that it was good"[8] is repeated all six days. Gen. 1:4, 10, 18, 21, 25 and 31. It is true, for example, that plants have instrumental value for man and animals. This fact, however, does not alter the intrinsic value of vegetation "because they are God's creatures that reflect his glory and are the objects of his delight" (Davis, 2004, 270). When humans were created in the image of God it is given an extra statement that God saw the entire creature and he saw that it was very good, Gen. 1:31, a justification for humans' specific intrinsic value and dignity. Creation of man gives a separate justification which implies a special protection related to human life and death. This fact also gives man a special responsibility as a caretaker (*cf.* Heiene & Torbjoernsen, 2011, 208).

The most debated issue of the creation stories is related to the so-called cultural mandate, in which God told man to fill the earth and subdue it, Gen. 1: 27-28. What does the term "subdue" or "rule" mean? Professor Lynn White stated in his much quoted article from 1967 that the biblical concept of ruling over creation was the main reason for the modern exploitation of creation. "We shall continue to have a worsening ecological crisis until we reject the Christian axiom that nature has no reason for existence save to serve man" (cited from: Davis, 2004, 263).

American professor, Stanley P. Saunders, confirms that White "was essentially accurate" in his assertion. He asserts that Christians in the west were guilty of *dualism* (separating God from nature), *anthropocentrism* (humans are the only figures in creation made in the image of God) and *human chauvinism* (creation exist ultimately for human sake) (Saunders, 2007).

Christian ecologists today will refute White's interpretation of the Christian understanding of the cultural mandate. Most interpreters support an understanding that the verb "subdue" implies more caretaking than ruling. The cultural mandate over the whole creation seems more to be like Adam's caring for the garden, Gen. 2:15. According to this interpretation, the Christian worldview is neither anthropocentric (man in center) nor ecocentric, (cosmos in the center), but theocentric, i.e., God is the center and owner of the earth and everything in it, Psalm 24:1. The cultural mandate places man as a benevolent king (Davies, 2004, 270), or as a vice-king (Tro og skaperverk, 2009, 4) who is responsible to cultivate and take care of creation on behalf of the owner. Two important aspects of Christian ecology are therefore "divine ownership and human stewardship" (Geisler, 1997, 302).

The cultural mandate raises some further questions related both to theology and anthropology: How is the cooperation between the Creator and his stewards and who is in control, at the end? According to the substantial view of being created in God's image, God the Creator is in control. He created everything according to his will. After having consulted the divine council, he lastly created humans, Gen. 1: 27-28. Humans are meant to reflect his will and essence, since they are created in his image. The cultural mandate will consequently be colored by the view of the Creator. According to critics of the substantial view, human image-bearers of God must pursue their task in accordance with a patriarchal view of God. They assert that the view opens up an avenue for manipulation and exploitation of all created non-human entities, such as

animals and plants as well as non-living creatures, i.e., the ground and all its resources. *Cf.* the above contested view expressed by White and defended by Saunders.

American professor of The Old Testament, Terrence E. Fretheim, represents the relational view of the relation between the Creator and the creature and emphasizes a strong approach to the ecological crisis at hand. He affirms that all creatures are dependent upon God. However, at the same time God and humans are interdependent for the *creatio continua*. Fretheim refers to three stages in creation: originating creation, continuing creation and completing creation. The first stage is completed, the second stage is in process and the third step is in the future (Fretheim, 2005, 5-9). Most interpreters will be in accordance with Fretheim regarding the three stages of creation; however, the outworking of the steps might vary among them.

Fretheim argues that God in his originating creation has chosen to establish an interdependent relation to his creation. Indeed, even more: In regard to the furtherance of God's purposes in the world, God "has freely chosen to be dependent upon both human and non-human" (Fretheim, 2005, 270). He states this position as a deliberate limiting of God's absolute control. Such a relational perspective means that God's sovereignty "gives power over to the created for the sake of relationship of integrity". He admits that "this move is risky for God, for it entails the possibility that the creatures will misuse the power they have been given, which is in fact what occurs" (Fretheim, 2005, 272). The consequences of the fall even increased the future risks. However, such a relational understanding of the triune Creator, as Father, Son and Holy Spirit, also lead to a relational understanding of the cultural mandate. The mandate is to be pursued in freedom and love, in accordance with the relational interpretation of God the Creator, in whose image man is created.

Saunders supports the relational approach to the ecological crises and regards Fretheims's "alternative reading of the Biblical account of creation" [..] as a "significant step toward a viable Christian version of deep ecology". He states that the relational interpretation applied to the creation accounts refutes White's conclusion. Saunders further develops this perspective by adding the principle of hospitality, i.e., making room for others. Divine self-limitation opens a room for humans and non-humans to be active co-Creators. Real relationship means sharing place. This is what God the Creator does, and this is what all created beings are called to do (Saunders, 2007).

The assertion that the relational model of creation represents a Christian version of deep ecology is however, not generally approved. It is a fact that deep ecology movement represents philosophical and religious traits which are not in accordance with the Christian faith. Fred Krueger rejects the deep ecology movement as a "sought to construct a new religion around pseudo-religious values…", even though he clearly defends that ecology is an important challenge for Christian ethics (Krueger, 1995). Deep ecology movement is connected to a *New age* type of religion, which not only asserts the inherent value of nature, but also regards nature as sacred and untouchable. The mission statement of deep ecology reads: "We believe that current problems are largely rooted [..] in the loss of [..] behavior that celebrates the intrinsic value and *sacredness* of the natural world [..] (emphasis added). According to a Christian worldview, the deep ecology position does not distinguish clearly between the Creator and creation and represents a non-theistic or a pantheistic worldview by talking about nature as sacred. It is easier to affirm the deep ecology movement when it rejects "shallow ecology", i.e., a short-term approach "often promoting technological fixes [..] based on the same consumption-oriented values and methods of the industrial economy" (Foundation for Deep Ecology Movement, 2012). *Cf.* the view of Naess above.

God's sovereignty, human free will and open theism

The relational position of Fretheim and Saunders was introduced some decades ago under the term "open theism". The issue at stake relates to the sovereignty of God, his foreknowledge and the human free will, themes which all have been debated throughout the history of theology, e.g. in particular the debate between the successors of the reformer Jean Calvin (1509-1564) and the Dutch reformer Jacobus Arminius (1560-1609). The discussion was raised anew by Adventist theologian, Richard Rice[9], and brought further by Evangelical theologian, Clark H. Pinnock[10]. The term "open theism" stands in contrast to "classical theism". According to open theism, God is able to anticipate the future, but he is still fluid and flexible. God is open to respond to prayers by changing his mind as well as to react to decisions made by humans. This applies whether humans are obedient or disobedient. Rice talks about the "free-will theism", which expresses the free will of humans and the corresponding limitation of God's knowledge. "The question is whether God's knowledge about the future is exhaustive" (Rice, 1989, 121-139). Another of the proponents of this view suggests that the term "open futurism" is better than "open theism" (Boyd, 2001).

Representatives of open theism have critiqued the understanding of classical theism, which endorses God's sovereignty and that God's will and purpose are decisive in regard to the final outcome. Human life and the development on earth are determined, some would say, more or less predestined. The sovereignty of God is dominant. Human activities are of less importance. To work for a changed lifestyle, or to suggest a reduction of the emissions of CO_2 and an attempt to pursue political or economical decisions correspondingly, may not be futile or in vain, but is less likely to make a difference.

Open theism is more optimistic, stressing that what humans do and what they refrain from doing, will influence the future on all levels. Humans co-work with God, who lovingly confirms their freedom of will, even though he continually risks their disobedience and wrong decisions. The final results are open, depending upon the obedience and faithfulness of the stewards. Proponents of open theism invite humans in general and Christians in particular, to become agents for change to protect and preserve all creatures as well as to support a holistic perspective of creation.

The theology of open theism has, however, been strongly objected by a number of theologians, mainly from the Calvinistic tradition. The Baptist preacher and author, John Piper, defends the faith of a sovereign God. He states that God is predeterminative in his actions both in creation, incarnation, the Great Commission and the conversion of individuals, e.g. "as many as were ordained to eternal life believed" (Acts 13:48). In particular Piper critiques the concept of God as a risk-taker. He states as truth "that God does not and cannot take any risks" (Piper, 2001, 55). He explains that the term "risk" implies uncertainty, e.g., like uncertainty in gambling. On the contrary, he asserts that God, according to the Scripture, has both a precise intention and plan and foreknowledge. He refers to Acts 2:23 and Psalm 115:3: "God is in heaven and does whatever he pleases". Questions we do not understand are explained by the fact that God "can allow his cause to suffer temporary setbacks (both individually and globally) [..] But to describe him as a risk-taker calls into question his omniscience and sovereignty, and therefore takes away the very foundation of our confidence" [..] (Piper, 2001, 62). Regarding the issue of foreknowledge, this is clearly the position of classical theism.

I believe the substantial model best takes care of the necessary gap between the lordship of God and the sinfulness of man. Already in the early church, Saint Ephrem the Syrian (c. 310-373 A.D.), wrote about the ontological gap between humans and Christ and the Creator (*cf.* Brock, 2007, 25). This gap was the main reason for rejecting Arianism in the early Church. Arianism asserted that Christ was created, not born by God from eternity. The apostle Paul underlines that God is the one who creates and the one who completes everything in Christ (1 Cor. 15: 20-28). The history of redemption is therefore an important part of the continuing and completing creation. Christ is the agent of God, as the incarnate word of God (John 1:14). Neither the continuing creation nor the final completion of creation will take place unless it is related to and based on his work of redemption (Rom. 8: 17-25). Human creativity and scientific innovation are essential parts of the cultural mandate. However, in regard to the theological and teleological perspective of creation, the ultimate goal will never be reached without divine action and intervention. Classical theism secures God's supremacy. God will one day, in Christ, renew, re-create the whole creation.

Against this background, one can better make an evaluation of the different interpretations concerning God's relation to creation, the cultural mandate and the present ecological crisis.

On the one side, I will argue in favor of some aspects of both traditions. The relational view and open theism emphasize human responsibility more clearly than a deterministic point of view. However, the substantial view and classical theism underline the importance of God as the Almighty, his providence and his steadfast promises. Open theism weakens the promises, since the final result can be determined more by human actions, than by God's fulfillment of his promises. To describe God as a risk-taker, is to take "away the very foundation of our confidence" (Piper, 2001, 62).

On the other side, I will also argue against some positions both of classical and open theism. I raise the question against the background of biblical doxologies to God, e.g., "the depth of the riches of the wisdom and the knowledge of God! How unsearchable is his judgments" [..] Who has known the mind of the Lord? Or who has been his counselor?" (Rom. 11: 33-34). It seems that both sides of the discussion are too cognitive and rational in their approach. It appears that the logic and arguments underestimate the wisdom and "unsearchable judgments" of God in regard to his foreknowledge and predestination. My question is somehow answered by the mutual accusations put forward: Pinnock accuses his opponents "of silencing Scripture with 'Calvinistic logic'" and Piper responds by referring to Pinnock's "neo-Armenian logic, not Scripture" (Cited from: Piper, 2001, 57, n. 6). In a foreword Pinnock analyses the debate and admits he is not sure whether "the debate over divine sovereignty and human freedom is capable of being resolved by human minds" (Pinnock, 1989, x). I would rather back off from some of the logical arguments and emphasize the mystery and sovereignty of God, and thus argue in favor of the apophatic tradition of the early church, i.e., that God can only be described by negations, never by positive descriptors (McGrath, 1999, 118). This is supported by Paul, when he writes that "now we see indistinctly in a mirror [..]" (1 Cor. 13:12).

The universal church knows that the cultural mandate is given and the church is confident that a good stewardship is realistic and possible. Cardinal Kasper asserts that humans, created in God's image, "must be understood as a relational and dialogic being. [..] Neither force, money, power and influence, not the self-assertion 'of the fittest', but instead tolerance, respect, solidarity, forgiveness, goodness and practical love shall determine the course of the world" (Kasper, 2009, 95).

I will now discuss how Christian stewardship, in accordance with Kasper's view, can be implemented and possibly influence the ecological future and possibly even enhance the final Kingdom of God on earth.

Christian stewardship in light of moral motivation, transformation and a new heaven and a new earth

In Henrik Ibsen's dramatic poem from 1867, Peer Gynt says:

> The thought, perhaps the wish the will
> Those I could understand; but really
> To do the deed! Ah, no that beats me![11] (Ibsen, 1867: Act III, Scene 1)

Ibsen's poetic expression catches the universal question already raised in the Ancient Greek philosophy about the problem of moral motivation: How is the relation between knowing and doing? Plato asserted that knowledge about what was good and right is both a necessary and a sufficient prerequisite to act correspondingly. Aristotle affirmed the need for knowledge, or the intellectual virtues, but added that it was not sufficient. Due to the problem of the weakness of the will (Gr. *akrasia)* the duty to act justly and properly was also dependent upon the moral virtues, which were to be obtained by practical training and imitation of good examples (*cf.* Johansen and Vetlesen, 2002, 23). Moral virtues were based on a deliberate choice between two extremes (the golden way in the middle). Later on, through growing, the middle way became a steady habit. Lastly the habit developed into a dispositional pattern that became an integral part of the personality.

The modern science of psychology is wrestling with the same problem of moral motivation. In dealing with the issue of violence and abuse against children, Mogens and Ane Ugland Albaek discuss why theoretical instruction so often is insufficient to ensure implementation of the necessary tools to improve the treatment of psychological traumas. After referring to a study made by Joyce and Showers, they conclude that implementation of change in practice does not take place until the information, discussion, practical training and feedback, was followed by personal coaching and training over time (Albaek, 2010, 49).

The examples above are all pointing to the same conclusion. The Aristotelian emphasis on training (coaching) is affirmed, and the Platonic optimistic view of knowledge alone as motivation for action is rejected. Knowing the good does not necessarily lead to doing the good. The balanced view of Aristotle is affirmed also by many ethicists. Furthermore, the ethical theory of virtues as a complement of duty ethics is resumed in recent years, including the teleological emphasis of what is just and good (*cf.* MacIntyre, 2007).

However, a Christian perspective on this question must correct also the Aristotelian view. The apostle Paul expresses a more realistic view on human weaknesses. He writes: "For what I do is not the good I want to do; no, the evil I do not want to do – this I keep on doing" (Rom. 7: 18-19). Paul is not rejecting the value of training and moral virtues, but he turns the whole issue into a question about life and death. He asserts that to reject the evil in human nature we have to die from the old life, i.e., to die together with Christ. Only a new, resurrected life together with Christ can enable humans to realize the stewardship by implementing the will of God (*see* Gal. 2:20; Rom. 12: 1-2).

In Romans, chapter 8, Paul discusses human sinfulness and human disability to implement the will of God, the individual's death and resurrection with Christ as well as the glorious, reconciled future, when both humans and nature will be released from the present bondage. The will of God (the law) is good, just and spiritual and is given in the Bible as rules and regulations for ethical behaviour. The moral problem, however, is not the law, but the human nature: "For what the law was powerless to do in that it was weakened by the sinful nature, God did by sending his own Son [..]" (Rom. 8:3). The law gives proper and satisfactory information, but it is without power, due to the nature of men. However, Christ "condemned sin in sinful man, in order that the righteous requirements of the law might be fully met in us, who do not live according to the sinful nature, but according to the Spirit" (Rom. 8:4). The Spirit is a spirit of power, which acts as a personal coach and enables Christians to live lawfully.

The indwelling Spirit promotes spiritual fruits in Christians (*cf.* Gal. 5: 19-22). The fruits are identified as Christian virtues, i.e., faith, hope and love (1 Cor. 13:13). These virtues come in addition to the classical cardinal virtues, i.e., courage, wisdom, moderation and justice. The Christian virtues are manifold and specified as nine fruits: "Joy, peace, patience, kindness, goodness, faithfulness, gentleness and self-control" (Gal. 5:22). Some of these virtues may overlap the classical virtues. The apostle Paul contrasts the fruits of Spirit (virtues) with the fruits of the sinful nature (vices). Of the latter he mentions vices like immorality, debauchery, idolatry, hatred, discord, jealously, selfish ambitions, factions and envy (*see* Gal. 5:19).

In an environmental perspective, there is a great difference between humans who are motivated and driven by virtues in contrast to vices. An anthropocentric environmental ethics is most often combined with a utilitarian perspective (Heiene and Torbjoernsen, 2011, 204). Utilitarianism should emphasise altruism, but is in practice often limited to a nationalistic or a narrower group of people's interests, sometimes also combined with a short term time perspective. This may leave out the interests of non-human creatures, nature itself and even the interest of future generations. Therefore the modern utilitarian perspective on environmental ethics may better be characterised by egoism and vices than by altruism and virtues. The classical emphasis on virtues, closely related to the teleological ethics, is to be distinguished from utilitarianism and modern consequentialism (MacIntyre, 2007, 150).

A Christian view on human possibility to implement good stewardship does not mean a rejection of the goodness of all humans and an assertion that sin and egoism prevail in mankind. The mentioned overlap of classical and Christian virtues affirms a common ground in terms of ethical values (Phil. 4:8). However, a Christian view implies an extra dimension in terms of overcoming hindrances and enhances the implementation of adequate actions. The fruits of the indwelling Spirit give the possibility to exhibit personal modesty and increase love for neighbours. These elements are strong ethical motives.

In addition to the empowering of believers and the fruits of virtues by the Holy Spirit, transformation is a concept of outmost importance in regard to human stewardship of God's creation. The present environmental crises raise the general issue of how change is possible. As discussed above, there is inertia in terms of concrete decisions for the necessary change of the prevailing political and economic course. With reference to the challenges for a renewed Kyoto-protocol and recent international climate conferences (Copenhagen, 2009; and Cape Town, 2011) this inertia is once again exposed as a worldwide phenomenon.

The biblical concept of transformation is about a turn around of humans, individually as well as collectively. In theological terms: Sinners are to be sanctified. This is the purpose of the act of incarnation. God became man in order that humans should become divine (Rom. 8:3). In the early church this was called "the Irenaean-Athanasian exchange principle" (Chia, 2011, 131). Transformation is a process in which humans is changed from solely loving themselves to loving God and exercising concern for neighbors' welfare. The great commandment calls humans to "love the Lord your God with all your heart and with all your soul and with all your mind" and to "love your neighbor as yourself" (Mt. 22: 37-39).

In the analysis of open and classical theism above, I discussed God's properties. To answer even more precisely the question about whose image humans are transformed to be like, God the Creator must be further examined. Some definitions of some worldviews are relevant: Worldviews reflect different relations between the Creator and the creatures, which also imply how God is understood. For example, atheism asserts that there is no God or metaphysical reality outside cosmos, nature or living creatures. According to atheism and the functional view the world emerged out of matter, *ex materia,* and "traditional materialists hold that the world is an endless process of generation" (Geisler, 1997, 302). The worldview of deism states that God created the world, ignited life and then left the scene. There is no longer any contact or relation between the Creator and the creatures. According to pantheism, God and cosmos are identical. Cosmos arose out of God, *ex deo.* The two entities are synonymous and penetrate each other. This worldview often implies that all creatures and nature are divine and sacred. *Cf.* the view of deep ecology above.

The concept of theism denotes a relation between God and cosmos where the two are clearly separated and immensely differs from each other. This is the position of the Christian worldview: God creates cosmos out of nothing, *ex nihilo.* But God has a plan with creation and he cares for all creatures (*see* Psalm 24:1, 10; Psalm 104: 1-35). In the New Testament God is fully revealed as Father, Son and Holy Spirit, and the early church developed the concept of the triune God.

In between pantheism and theism, there is a worldview called panentheism which means that God is greater than cosmos, as an eternal force behind universe; however, everything in cosmos is also in God. The philosopher Baruch Spinoza advocated panentheism, when he asserted that the universe was made of two attributes, thought and extension (Lat. *res cogitans* and *res extensa*), but God had many additional infinite attributes. However, God and cosmos are only one substance. His view led to a defacing of the difference between God and creation (Tollefsen *et al*., 2002, 338).

The concept of panentheism is partly in agreement with the theistic position of Christian theology that God is a distinct being not synonymous with universe. And panentheism is partly different from theism, because panentheism asserts that everything, including humans, is regarded as going "out of God" and being "identical with God". Many theologians interpret certain passages in the New Testament according to panentheism, e.g., there is a union between believers and God (*cf.* John 15:4, 17: 21-23), and the many "in Christ" in the Pauline letters. And the apostle Peter writes about how believers through "very great and precious promises" may "participate in the divine nature" (2 Pet. 1:4). The latter quotation is one of the references for the Orthodox teaching about deification.

There are, however, aspects of panentheism that are not coherent with classical theology. All the main church traditions affirm the Creeds of the early church and

consider creation to be clearly different from God, Creator. The triune God is uncreated, while everything else is created (*cf.* the above reference to the ontological gap). In the Orthodox Church, creation is part of the divine workings, i.e., a result of God and belongs to God. The teaching on creation (cosmology) and the teaching on salvation (soteriology) are closely related, and both teachings are closely related to incarnation. "Orthodoxy has a strong grasp on the interconnectedness of the whole cosmos, arising from its belief in the Spirit as 'everywhere present and filling all things'" (Evangelical Alliance, 2001, 32). This position has some traits which may be misunderstood and confused with panentheism. Orthodox theology, however, makes an important distinction between the essence of God and his energies. Creation is a result of the divine energies, which are communicable attributes of God, but not of God in his divine and incommunicable essence (Gr. *ousia*) (Chia, 2011, 129).

Most Christians agree about the final Christian transformation, which is to "be like him, for we shall see him as he is" (1 John 3:3). However, there are different church traditions regarding when and how this process of transformation will take place between conversion[12] and fulfillment. The Lutheran confession emphasizes justification by faith alone (Lat. *sola gratia*), most often strictly interpreted as a divine declaration in the heavenly court, and less emphasis is put on sanctification or the transformative aspect of salvation. The Catholic Church emphasizes the grace of God given to all Christians in baptism. Grace is not interpreted as God's favor, as among the Lutherans, but as infused grace (Lat. *gratia infusa*). Thomas of Aquinas talks about the "habitual grace" which means to "possess the favor of God in such a manner that a supernatural change comes about [..]" (McGrath, 2001, 452). God's grace empowers Christians to do good works. The Orthodox Church puts the emphasis on transformation and deification. Roland Chia discusses the declarative view of Lutherans and the transformative view of the Orthodox Church, and, albeit the two terms designate two different metaphors and answer two different questions, he concludes that "they are not antithetical to each other. Instead, there is a profound coherence between the two concepts" (Chia, 2011, 128).

In the biblical texts, the concept of transformation, like the concept of salvation, is described as an ongoing process related to a past, present and future experience. *Cf.* the following passages: Mt. 9:22, Rom. 8:24 (past tense), 1 Pet. 3:21, 1 Cor. 3:18 (present tense), Mt. 10:22, John 5:34, Rom. 5:9 (future tense). With reference to the need for a responsible environmental stewardship here and now, passages talking about transformation in present tense are of particular interest. "And we who with unveiled faces all reflect (or: contemplate) the Lord's glory, are being transformed into his likeness with ever-increasing glory, which comes from the Lord, who is the Spirit" (1 Cor. 3:18).

The context explains how Moses had to cover his face because of the glory of God. In the new covenant, however, the cover has been removed. By turning to Christ, the Lord, all Christians are enabled to see God's glory, uncovered, but we do not yet see face to face, only like in a mirror. At the present time believers are allowed, only indirectly, to approach his glory uncovered. However, the main message in our passage is the result of such a focused contemplation (NIV's alternative translation) to the Lord: Those turning to him are being transformed to the same image.

According to Christian theology, there is an ongoing transformation taking place in the lives of believers. Christians who are seeking the triune God, in prayer, reading of the Bible, the Lord's Supper and the Christian community, are continually being

transformed to the image of God. This is how *Imago Dei* is being restored in believers already here and now. By this divine transformation believers are not only becoming coworkers or partners with God, but they are actually taking part in the continuing creation of the triune God. It seems as if the more Christians are paying attention to God, the stronger seems the transformation to take place. This is the transforming power of God, the Holy Spirit.

The process of being transformed may take place individually through devotion, meditation and contemplation. Throughout the centuries, the church history has told the stories of many holy men and women, e.g. Antony of Egypt (c. 251-356 A.D.) (Foster, 1998, 99-106) and Francis of Assisi (1182-1226). Francis' reverence for all creatures, as well as his praises to the heavenly entities, expressed in his hymn to the sun, is well known (McGrath, 1999, 149-151). However, divine transformation takes normally place in the fellowship of believers in the church. This is a common understanding and emphasis among all classical church traditions. The Lutheran faith underlines the importance of the church fellowship (Lat. *Communio sanctorum*). The Catholic Church puts the focus on the office of the Bishop, as the uniting office in the church. The Orthodox Church emphasizes the Eucharist as the focal point where the glory of the Lord continually is revealed. The Evangelical and Pentecostal church traditions likewise underline the importance of the local church – as Christian fellowship in Christ – where the word of God and his Holy Spirit reveal the universal presence of triune God. A viable and proper Christian stewardship will always be anchored in and based on the spiritual transformation which runs out of the presence of God's glory, in and through his church.

The biblical term "reconciliation" may be regarded under a twofold perspective, partly as a process and partly as the result of the process. As a process it refers to the ongoing struggle to realize reconciliation among peoples, between humans and God and the other creatures, and to ensure the richness and diversity in all creation. As a result of this process it refers to the eschatological fulfillment of the promised new earth and the new heaven (*cf.* Rev. 20:1 and Rom. 8: 18-27). The twofold perspective contains a tension related to the concept of the kingdom of God, which is already at hand, and still belongs to the future, the "already" and "not yet" perspective. Applied to the environmental question, mission leader Kjetil Aano accepts that the goal is ultimately the responsibility of God, while the process is the responsibility of the church (Aanom, 2007, 170). *Cf.* Mt. 24:14 and 2 Pet. 3: 12-13.

The last statement implies another important issue related to the final outcome of the environmental crisis. At the same time it is both continuity and discontinuity between the present world and the final outcome. Some Christians believe that the world on the day of destruction will burn in fire and disappear (*see* 2 Pet. 3:10). Others teach that Jesus returns to the world every time the local church helps the oppressed and liberates the poor. There is no future return of a personal Messiah. I reject both these extreme positions and argue for a balanced view, i.e., "to think correctly about the relation between creation, salvation and the completion" (Tro og skaperverk, 2009, 11). On the one side, the belief in discontinuity is correctly based on a divine intervention, i.e., the kingdom of God will one day be completed when the Messiah returns in power and glory (*see* Luke 21: 27-28; Mt. 24: 30), *cf.* a new heaven and a new earth (Rev. 21:1). On the other side, the belief in continuity is secured by the fact that creation is to be renewed, not replaced, released and not rejected (Rom. 8: 18-21). Christian stewardship of God's creation is justified in terms of human participation in the continuing creation, as well as enhanced by proper motivation and transformation.

Summary and concluding remarks

In this article I have outlined the intrinsic value of God's creation, including both humans, non-humans and the non-living nature, albeit there are good reasons for a grading of intrinsic values. Humans alone are created in the image of God and have a particular dignity and responsibility as stewards of God's creation. I have also discussed different interpretations of biblical anthropology and the issue of human weakness and sin and paid a particular attention to the relational view of the Creator and the cultural mandate. I have raised some objections to the view that God "has freely chosen to be dependent upon both human and non-human" as well as critical remarks to the open theism and the relational view. Furthermore, I have discussed the issue whether knowledge alone is sufficient to implement proper acts. I advocate an understanding of Christian ecological ethics that emphasize the incarnation, reconciliation and resurrection of Christ as the ultimate basis for the human stewardship. Spiritual empowering, the fruits of the Spirit as Christian virtues and a theology of transformation, are necessary for the implementation of God's will in today's world. I evaluate the panentheistic worldview in light of Orthodox' and Protestant's theology and clarify some necessary conditions for avoiding non-Christian worldviews. Lastly, I analyze the tension between the continuity and the discontinuity in regard to the fulfillment of the human stewardship of God's creation.

The present state of the environmental crisis and the ecological challenge are a global task, a divine mandate and a responsibility for all humans in general and for the global Christian church in particular. Those who confess the triune God are already involved in a divine process of being empowered and transformed, a process that continually develops as a participatory act between the Creator, on the one side, and individual believers and the church, on the other side. The good process and its fulfillment are finally promised by God, but for the time being, humans, and especially Christians, are God's stewards as his responsible agents in his creation. A Christian ecological ethics is primarily binding for Christians, but its applicability allows all humans to practice it.

BIBLIOGRAPHY

Articles in Magazines and Periodicals

1. Albaek A. U. and Albaek M. (2011) The Missing Link of Assessment: Exploring Contributing Factors for "Non-Assessment" of Psychological Trauma in Children and Adolescents by Professionals. In: *Today's Children are tomorrow's Parents*, No. 30-31, Timisoara, Romania, pp. 42-53.
2. Apostolic Creed: Citations after the most common Lutheran translation of the Apostolic Creed, and the 1988 ecumenical version (ELLC) of the Nicene Creed.
3. Chia R., Cooper D., Thobaben J. *et al.* (2004) *Bioethics. Obstacle or Opportunity for the Gospel? Lausanne Occasional Paper*, No. 58. Lausanne Committee for World Evangelization, 84 p.
4. Chia R. (2011) Salvation as justification and deification. In: *Scottish Journal of Theology*, Vol. 64, No. 2, pp. 125-139.
5. Holbrook D. (1990) Deep Ecology, fact, value or ideology? In: *Methodology Science, international journal for the empirical study of the foundations of science and their methodology*, Vol. 23-3-1990, Esser Scientific Press, Haarlem, Netherlands, pp. 130-141.

6. Kasper W. (2009) The Timeliness of Speaking of God. In: *Tidsskrift for Teologi og Kirke, 02/2009* [*Journal for Theology and Church 02/2009*], Oslo, pp. 83-98.
7. White L., Jr. (1967) The Historical Roots of Our Ecologic Crisis. In: *Science 155*, pp. 1203-1207.

Studies

1. Aasen H. S., Halvorsen R. and Barbosa da Silva A. (2009) *Human Rights, Dignity and Autonomy in Health Care and Social Services: Nordic Perspectives.* Antwerp – Oxford – Portland: Intersentia Publishers, 221 p.
2. Boyd G. A. (2001) *Satan and the problem of evil: constructing a trinitarian warfare theodicy.* Downers Grove, Illinois: InterVarsity Press, 556 p.
3. Brock S. (2007) *Det upplysta ögat* [*TheLuminous Eye*]. Sweden: Anastasis Media AB, 176 p. (Original edition: (1992) Michigan, US: The Cistercian Publications.)
4. Carson R. (1962) *Silent Spring.* Boston: Houghton Mifflin Co., 370 p.
5. Davis J. J. (2004) *Evangelical Ethics. Issues Facing the Church Today.* Phillipsburg, NJ: P&R Publishing, 360 p.
6. Evangelical Alliance. (2001) *Evangelicalism and the Orthodox Church. A Report by the Evangelical Alliance Commission on Unity and Truth among Evangelicals (ACUTE).* London, 163 p.
7. Foster J. F. (1998) *Streams of Living Water. Celebrating the Great Traditions of the Christian Faith.* [San Francisco:] HarperSanFransisco, 424 p.
8. Fretheim T. E. (2005) *God and World in the Old Testament. A Relational Theology of Creation.* Nashville, TN: Abingdon Press, 398 p.
9. Geisler N. L. (1997) *Christian Ethics. Options and Issues.* Grand Rapids, Michigan: Baker Book House, 335 p.
10. Heiene G. and Thorbjoernsen S. O. (2011) *Kristen etikk – en innføring* [*Christian Ethics – an Introduction*]. Oslo: Universitetsforlaget, 259 p.
11. Johansen K. E. and Vetlesen A. J. (2002) *Innføring i etikk* [*Introduction to Ethics*]. Oslo: Universitetsforlaget, 235 p.
12. Kristiansen R. E. (1993) *Økoteologi* [*Ecotheology*]. Fredriksberg: Anis, 222 p.
13. MacIntyre A. (2007) *After Virtue.* King's Lynn, Norfolk: Duckworth, 3rd ed., 286 p.
14. McGrath A. E. (1999) *Christian Spirituality.* Oxford, UK: Blackwell Publishing, 204 p.
15. McGrath A. E. (2001) *Christian Theology. An Introduction.* Oxford, UK: Blackwell Publishing, 3rd ed., 616 p.
16. Maeland B. and Tomren T. S. (eds.) (2007) *Økoteologi, kontekstuelle perspektiver på miljø og teologi* [*Ecotheology, contextualiced perspectives on milieu and theology*]. Trondheim: Tapir akademisk forlag, 263 p.
17. Pinnock C. H. (general editor) (1989) *The Grace of God and the Will of Man.* Minneapolis, MN: Bethany House Publishers, 318 p.
18. Piper J. (2001) *The Pleasures of God.* Fearn, Ross-shire, Scotland: Christian Focus Publications, 396 p.
19. Tollefsen T., Syse H. and Nicolaisen R. F. (2002) *Tenkere og ideer. Filosofiens historie fra antikken til vår egen tid* [*Thinkers and ideas. The history of philosophy from the antique to modern times*]. Oslo: Gyldendal Norsk Forlag, 575 p.
20. Webster's Encyclopedic Unabridged Dictionary. (1996) Random House.

Sections of Books

1. Aano K. (2007) Økologi og Kristen misjon [*Ecology and Christian mission*]. In: *Økoteologi, kontekstuelle perspektiver på miljø og teologi* [*Ecotheology, contextualiced perspectives on milieu and theology*]. Trondheim: Tapir akademisk forlag, pp. 161-178.
2. Elliott R. (2002) Environmental Ethics. In: Singer P. *A Companion to Ethics.* Oxford, UK: Blackwell Publishers, pp. 284-293.
3. Rice R. (1989) Divine Foreknowledge and the Free-Will Theism. In: Pinnock C. H. (gen. ed.) *The Grace of God and the Will of Man*. Minneapolis, MN: Bethany House Publishers, pp. 121-139.

Remote Access and Internet Resources

1. Foundation for Deep Ecology Movement ("Mission statement", and "history of the movement") [online] [cited 18th January 2012]. Available: http://deepecology.org/movement.htm
2. Ibsen H. (1867) [online] *Peer Gynt, a dramatic poem*. English version. [cited 31st January 2012]. Available: http://www.archive.org/stream/peergynt dramatic00ibseuoft/peergynt dram atic00ibseuoft_djvu.txt
3. Kreuger F. (1995) [online] Why Ecology is a Christian Issue. A historical review of the ecological path not taken. In: *Earth Times, San Diego*, No. 8/95 [cited 25th January 2012]. Available: http://www.sdearthtimes.com/et0895/et0895s5.html
4. Saunders S. P. (2007) [online] Toward a Deep Christian Ecology. In: *Creation on the Cross*, Vol. 2, No. 2. Fall 2007. A magazine published by Colombia Theological Seminary [cited 25th January 2012]. Available: http://www.atthispoint.net/editor-notes/toward-a-deep-christian-ecology/173
5. Tro og skaperverk [*Faith and creation*] (2009) [online] Uttalelse fra økumenisk arbeidsgruppe Norges Kristne Råd [*Report from ecumenical working group under Christian Council of Norway*]. [cited 31st January 2012]. Available: http://www.norgeskristnerad.no/index. cfm?id=358689 (pdf)

REFERENCES

1 *See* two book titles in the Bibliography (Kristiansen and Mæland).

2 Yellowstone National Park was established as the first American national park in 1872.

3 The Brundtland Report, from the United Nations World Commission on Environment and Development (WCED), published in 1987, gives an often quoted definition: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own need".

4 This is most often referred to as the anthropocentric perspective.

5 The phrase "deep ecology" was introduced to environmental literature in 1973. Naess is regarded as founder of the Deep Ecology Movement. *See* the homepage: Foundation for Deep Ecology.

6 Quoted from: Davis, 2004, 332, n. 36.

7 Citations after the most common Lutheran translation of the Apostolic Creed, and the 1988 ecumenical version (ELLC) of the Nicene Creed.

8 All Bible quotations are taken from NIV, unless otherwise is indicated.

9 *See* his book (1980): *The Openness of God: The Relationship of Divine Foreknowledge and Human Free Will*.

10 *See* his book (editor) (1994): *The Openness of God: A Biblical Challenge to the Traditional Understanding of God*.

11 The Norwegian original reads: *"Ja, tænke det; ønske det; ville det med, – men gjøre det! Nei; det skjønner jeg ikke"*.

12 Conversion in this context means acceptance of the Gospel by an individual sinner through baptism and faith.

Kristīgā ekoloģiskā ētika ar īpašu atsauci uz cilvēka kalpošanu Dieva radības kontekstā

Kopsavilkums

Kristīgā ekoloģiskā ētika mēģina izprast un aprakstīt cilvēka izaicinājumus attiecībā uz pastāvošajām globālajām ekoloģiskajām krīzēm, raugoties no kristīgas perspektīvas un balstoties kristīgā pasaulsuzskatā. Diskusija ietver īpašu atsauci uz Dieva radības kalpošanu, uzsver cilvēka iespējas rīkoties atbilstoši, kā arī cilvēka atbildību par nākošajām paaudzēm. Autors rakstā aplūko dažādas izpratnes par vides ētiku, piem., kas radībā ir morāli nozīmīgs? Balstoties kristīgajā ekoloģiskajā ētikā, autors aizstāv visas radības iekšējo vērtību, liekot uzsvaru uz cilvēka cieņas konceptu. Iekšējās vērtības koncepts tiek aplūkots morālās filozofijas un teoloģiskās ētikas perspektīvā, turklāt autors apgalvo, ka atbilstošu kalpošanu biosfērai un ekosfērai var nodrošināt tikai cilvēks. Tas ietver teoloģisku diskusiju par biblisko antropoloģiju un Dieva nodomu radībā, ietverot cilvēka rīcības nozīmīgumu attiecībā uz apsolītās jaunās zemes gaidāmo rezultātu. Tomēr galvenais izaicinājums ir iet tālāk par analīzes līmeni un pamatot, kā var tikt realizēta praktiska rīcība politiskā, personīgā un globālā līmenī. Šis morālais un teoloģiskais jautājums ir saistīts ar tādiem konceptiem kā Dieva tēls un līdzība, kultūras pilnvarojums, gribas brīvība, grēks un cilvēka spēja īstajā brīdī rīkoties ētiski atbildīgi. Kristīgais pienesums ekoloģiskajā ētikā ir balstīts Krustātsistā upurgatavajā mīlestībā, kā arī augšāmceltā Kunga Jēzus un Svētā Gara pārveidojošajā darbībā. Kristīgi ontoloģiskais-antropoloģiskais pamats globālajai kristīgajai ētikai ir cilvēka tapšana par jaunu radību, t.i., tāda normatīvā ētika, kas ir aplicējama visai cilvēcei un atbilstoši kurai jādzīvo gan kristiešiem, gan visiem labas gribas cilvēkiem, darbojoties Dieva radības pasaulē atbildīgā un ilgtspējīgā veidā.

Atslēgas vārdi: ekoloģiskā ētika, Dieva tēls, kultūras pilnvarojums, kalpošana, tikumi un netikumi

Dr. min. (Dr. theol.), assoc. prof. **Bjørn Øyvind Fjeld**

Ansgar College and Theological Seminary (Norway)

Address: Fredrik Fransons vei 4, Kristiansand NO-4635, Norway

Phone, fax: +47 38106506; +47 38106599

E-mail: fjeld@ansgarskolen.no

The Biblical Foundation of Christian Ecological Ethics

Kristīgās ekoloģiskās ētikas bibliskie pamati

António Barbosa da Silva, Dr. theol. (Norway)

The pollution of nature today is a global problem, the solution of which requires global ecological ethics, which attempts to solve ethical global problems that arise as a consequence of negative change in the environment, which is endangering the health, existential conditions, and the survival of all living beings. The author argues that Christians, as God's stewards are responsible to fight against the causes and negative consequences of the recent global climate change, expressing an ecological crisis. A moral philosophical analysis of the fundamentals of biblical anthropology and ethics is made as the basis for a global environmental ethics for Christians and all people of good will. The author emphasizes that: a) a global ethics requires universally moral obligation and responsibility, b) Christians have universally moral obligations toward God's creation which has *intrinsic value,* and c) the Bible contains universally applicable norms and virtues expressing love as the universal motivation for Christians to fulfil their duties as God's stewards. The *result* of the analysis is proposed as fruitful for a global Christian ecological ethics.

Key words: anthropology, foundation, intrinsic value, ecological crisis, global responsibility

1. Introduction

In different periods of Christianity, there have been different attitudes and approaches to environmental ethics. However, there are some theologians who have evaluated nature and the physical environment as part and parcel of the study object of biblical ethics. Ecological ethics has several names such as: milieu ethics, environmental, deep ecology, etc.[1] I shall use the term "ecological ethics", which seems to be more comprehensive than the other terms. We need global ecological ethics today because we are facing a very complex and global ecological problem, which can be summarized as follows:

" 'Human and nature' problems press in upon us from all sides. We are all becoming – or should be becoming – more cognizant of global warming; ecologically unsustainable cities and agricultural practices; the overuse of antibiotics in our health care systems and on our factory farms; the global crash of ocean fisheries; a human population and use of natural resources that is squeezing out other forms of life; the pollution and degradation of our air, soil and water.' [..] Or consider the demise of wild salmon rivers in Canada's eastern provinces thanks to the clear-cutting of the rivers' headwater forest. Or the sterilizing effects of the acid rain wafting east from the North America West. Or crashing ocean fisheries."[2]

It is relevant here to especially mention the Baltic Sea as one of the most overpolluted area in the world, which has enormous negative consequences for fish and biodiversities in the Baltic Region. This fact has a huge negative impact on human health and life in all the countries around the Baltic Sea and their neighbours.

2. Ecological ethics as an a universally applied normative ethics

The term "ecological" has the same etymology as "ecology" and "ecosystem". By ecology is meant here "a sub-discipline of biology, the study of life".[3] For our purpose here, a relevant definition of ecology is the following:

"*Ecology* (Gr. οίκος, 'house'; -λογία, 'study of') is the scientific study of the relation of living organisms with each other and their surroundings. Ecosystems are defined by a web, community or network of individuals that arrange into a self-organized and complex hierarchy of pattern and process. Ecosystems create a biophysical feedback between living (biotic) and nonliving (abiotic) components of an environment that generates and regulates the biogeochemical cycles of the planet. Ecosystems provide goods and services that sustain human societies and general well-being. Ecosystems are sustained by biodiversity within them.[4] Biodiversity is the full-scale of life and its processes, including genes, species and ecosystems forming lineages that integrate into a complex and regenerative spatial arrangement of types, forms, and interactions."[5]

By global ecological ethics is meant here a global normative ethic which specifies the duties or moral obligations and responsibilities that human beings everywhere have with respect to a balance in ecosystems so that the latter can "provide goods and services that sustain human societies and general well-being" (Ibid.). *Global normative ethics* must be constituted by global or universal ethical values, norms and moral virtues. It appears to be not easy or practically possible to show that such ethics exists. As a Christian, if one takes seriously the biblical teaching about God and his relationship to the human being and nature – as essential parts of his creation – one is logically forced to believe that there are global ethics. In other words, the Bible as a whole, and the Gospel, in particular, implicitly teaches that there is global ecological ethics in the sense defined here. Such an ethic is called Christian global ecological ethics. Before we deal with it, let us refine the term "ethics".

From the point of view of ethical studies one can talk about three different types of ethics: descriptive ethics, normative ethics and meta-ethics.[6] Here it is relevant to concentrate our attention on normative ethics, of which there are four types of theory:

Classical teleological ethics (e.g., Aristotle and Thomas Aquinas) emphasizes the goal of an action according to the human nature. For Aristotle the highest goal of ethics is human happiness (Gr. *eudamonia*), the attainment of which requires adequate

means that must be morality good. Aristotle maintains that for a person to attain happiness he/she should live virtuously. For classical teleology, the ends or goals – given in the human species – do not justify the means. To attain ethical ends requires ethically good means (Macintyre, 1984, 150). *Consequence ethics* (e.g., J. Bentham and J. S. Mills) emphasizes the consequence of an action. This type of ethics defines a right action as the one that leads to good consequences.[7] Contrary to teleological ethics, for consequence ethics the ends justify the means. *Deontological ethics* (e.g., I. Kant) emphasizes the duty of the moral agent. According to Kant an action is right if and only if it expresses the ethical duty conveyed by moral norms (moral rules and principles, based in values). And all norms should be coherent with the categorical imperative, the formulation of it, which is most relevant here is: *we should always treat other persons as ends in themselves and never only as means*. (Kant, 1981, 41). This is seen as Kant's version of the Golden Rule (Erikson, 1964, 234). *Virtues ethics* (e.g., Aristotle, A. Nygren) emphasizes the good character of the moral agent, the person who acts. A relevant definition of virtues here is: "virtues are habits and dispositions that enable a person to reason well (intellectual virtues) and to act in accordance with right reason (moral virtues)" (Shelp, 1982, 15).

Some people prefer one of these four ethical theories, other people prefer a combination of some aspects of two of them, and still other prefer a combination of some aspects of all four theories (Barbosa da Silva, 2011, 164). Ecological ethics can be, at least, of four types, depending on which of above mentioned normative ethics one chooses to apply to ecology. In this essay I shall argue for the combination of, above all, deontological ethics with virtue ethics. By emphasizing "above all", I don't exclude consequence reasoning in ethical reflections.

2.1 Ecological ethics as a combination of deontological ethics and virtue ethics

A combination of these two types of ethics is based on the Aristotelian assumption that rules- and principle based ethics tells us our duties or obligations, whereas virtue ethics motivates us to do them. Beauchamp & Childress sustain that there is a correspondence "although imperfect [..] between some virtues and norms, including principles, rules and ideals." (Beauchamp & Childress, 2009, 45f). For example, a benevolent person consistently follows the principle of beneficence and a righteous person consistently follows the principle of justice (Ibid.). This kind of person is said to be of a highly moral character or integrity, which means that he/she is prepared to obey moral norms even if his/her actions conflict with his own best interests (McFall, 1987, 9).

2.2 Two necessary conditions for a global ecological ethics

2.2.1 An ecological ethics should be comprehensive and not anthropocentric

The German-American philosopher Hans Jonas has criticized the traditional ethics as anthropocentric and contrasted it with his own proposed new ethics. Richard J. Bernstein describes Jonas' view of the traditional, anthropocentric ethics as follows:

> "Traditional ethics presupposed (1) that 'the realm of *techne* (with) the exception of medicine) was ethically neutral – in respect both of the object and the subject of such an action'; (2) that 'ethical significance belonged to the direct dealing of man with man [..] and all traditional ethics is *anthropocentric*'; (3) that 'for action

> in this domain, the entity 'man' and his basic condition was considered constant in essence and not itself an object of reshaping *techne*'; (4) that 'the good and the evil about which action had to care lay close to the act, either in praxis itself or in its immediate reach, and were not matters of remote planning'. All this has now radically changed. Because the very conditions of human action are transformed, we must also transform our ethics. This means the traditional moral imperatives are no longer sufficient for the new condition of human action" (Bernstein, 1995, 14).

Jonas' proposes a new "ethics of responsibility" (Bernstein, 1995, Ibid.) that can be called biocentric (*cf.* Ellliot, 2002), and which comprehends humans and their environments and which imposes an imperative that requires human responsibility for both human beings and others beings as a necessary condition for human existence now and in the future. The imperative of Jonas' ethics can be formulated in four different but equivalent ways:

> "A new imperative responding to the new type of human action and addressed to the new type of agency that operates it might run thus: 'Act so that the effects of your action are compatible with the permanence of genuine human life'; or expressed negatively: 'Act so that the effects of your action are not destructive of the future possibility of such life'; or simply: 'Do not compromise the conditions for the indefinite continuation of humanity on earth'; or again turned positive: ' In your present choice, include the future wholeness of Man among the objects of your will' " (Bernstein, 1995, Ibid.).

The relevant question here is: why should we exchange an anthropocentric ethics with a comprehensive one? There are different answers to this question, depending on the world view, concept of Man and life style that one endorses. Here we are interested in an answer implicit in the biblical worldview and anthropology. As we shall see later on, a comprehensive ecological Christian ethics takes into consideration both human basic interests and the basic interest of all living beings, grounded on the intrinsic value of all God's creation, i.e., it has value in itself (*cf.* Vogel, 1995, 35f). As Bernstein indicates, Jonas assumes that a necessary condition for human existence is that nature must be healthy (not polluted).[8]

2.2.2 A global ecological ethics must be universally applicable

It is relevant to specify here four different meanings of the term "global or universal ethics", and then indicate in which meaning the term is intended here:

1. Ethical norms *exist* everywhere, i.e., in all times and places;
2. There are ethical norms *applicable* to every human being everywhere;
3. There are ethical norms *acknowledged* and *accepted* by everybody everywhere;
4. There are ethical norms that are, in principle, *acceptable* people by in the whole world, despite the fact that they do not exist everywhere and are not known and not *acknowledged* and *accepted* by everybody everywhere.

The term "norms" in 1) to 4) is used to mean ethical rules and principles like "to tell the truth", "do not kill an innocent person" and "to respect a person's autonomy and dignity". I think that there is a global ethics only in the senses 2) and 4) of the term "global or universal ethics". For example the Ten Commandments, the Golden Rule and the Human Rights seem to fulfil the condition 2) and 4). In due course I shall argue for the possibility of global Christian ethics according to 2) and 4) above.

2.3 The global obligation of ecological ethics and the problem of moral motivation

A moral imperative in Kant's and Jonas' sense expresses a moral obligation, i.e., what one ought to do.[9] But it is controversial whether the knowledge of one's obligation is sufficient for doing it.[10] Concerning this issue Socrates asks: *Does one automatically do what is right or good, if one knows what is right or good?*

Socrates answers his question positively. On the contrary, several moral philosophers and St. Paul answer it negatively. Aristotle, for example, maintains that knowledge of our obligation in itself is not sufficient for doing it. One must also have moral virtues such as courage, justice as fairness, temperance and practical wisdom (Aristotle, 1980, 155-158). Bernard Williams' view of the function of virtue in the performance of actions seems to express Aristotle's own view. Distinguishing between the concept of skill and that of virtue, Williams indicates that virtues motivate their possessor *to use them willingly*, whereas skills do not: "[..] virtues are always more than mere skills, since they involve characteristic patterns of desire and motivation. One can be a good pianist and have no desire to play, but if one is generous or fair-minded, those qualities themselves help to determine, in the right contexts, what one will want to do" (Williams, 1985, 147). Hence, virtues motivate actions, whereas skills do not. For David Hume it is the feeling of *sympathy*, whereas for Immanuel Kant it is *good will* that motivates us to do our obligations, for example to obey the categorical imperative (Kant, 1981, 41f). For St. Paul it is *the grace of God* through Jesus Christ that motivates (enables) us to do what we ought to do, because sometimes we do not do the good we want to do, but the evil that we don't want to do (Rom. 7: 14-25).[11] For Hans Jonas it is "a natural feeling of responsibility", inherent in the human being that motivates us to act morally (Bernstein, 1995, 16).

In what follows I shall combine aspect of Aristotle's view with St. Paul's view, i.e., in dealing with the biblical foundation of global Christian ethics, I shall emphasize both its imperatives (norms) given in the Bible and its virtues (motivational factors) acquired in the Christian life style. Both aspects are necessary and together they are sufficient for the realization of Christian ethics in actions as works of love. Against this background, the foundation of Christian global ecological ethics will be outlined later on.

2.4 The fundamental goal and motive of a global ecological ethics

A global ecological ethics should be an application of a normative ethics theory to the relationship between humans and their environment. Ecological ethics in general deals with human responsibility for different aspects of nature, living and non-living, to the extent that human actions impact negatively on nature. Here we can think about pollution and negative climate change as dominant today, because of industrialization of raw materials and its effects in the ecological system. Ecological ethics concerns also positive aspects of development, as an expression of our contemporary endeavour to contribute to a better future for the coming generation, by preserving a healthy, i.e., unpolluted nature (*cf.* Jonas, 1984). Today, in our globalized world, and because of the vertiginous negative *climate change* which is taking place all over the world, both Christians and non-Christians are interested in formulating appropriate environmental ethics from a local, regional, national and international or global perspective. However, they may have different motives for their engagement in global ethics, even though they seem to have almost the same or at least one *common goal*, namely to save

the human kind and other livings species from a great catastrophe or tragedy that may endanger the lives of all species. For non-Christians and non-religious people interested in environmental ethics, one of their *motives* to formulate global ethics may be, above all, fear for the extinction of the living organisms from our planet (Jonas, 1984). They also seem to be moved by the hope to save livings beings from extinction. Christians may also be partly moved by this kind of fear and hope but they have additional motives and reasons for engaging themselves in formulating a biblical environmental or ecological ethics. Here we shall concentrate on Christians Orthodox, Catholic and Protestant ones from an ecumenical viewpoint (Falck, 1987, 18). Their norms, motives and reasons are called here *the foundation of a Christian or Biblical ecological ethics*, applicable globally in the sense already specified.

3. The main components of the biblical foundation of an ecological ethics

The model illustrated by Figure 1 below is conceived according to the view that every ethical theory is ontologically based on and epistemologically justified by a world view or a view of reality (*see* Figure 1, **III**). Thus, a materialistic and an atheistic view of reality will constitute a different foundation and justification for ethics than a religious view of reality, for example, the Jewish, Christian and Islamic view. And different religious ethics may differ from one another, depending on their view of God or Ultimate Reality, view of the human being, view of other beings and their inter-relationship.[12] These views and their inter-relationship according to Christian ethics are illustrated as follows:

Figure 1

III. Christians' love for their neighbours and for nature in the form of *doing what is good* to them.

↑

II. Christians' love for God in the form of *worship, reverence, thanksgiving* and *obedience* to Him.

↑

I. Faith in God as Creator, Father and Redeemer and Judge (Son) and as life Giver (the Holy Spirit).[13]

** The arrow can be read as: **I** is the source, motivation and justification of **II** and **II** is the source, motivation and justification of **III**.*

3.1 God as Creator and Redeemer and its implication for Christian global ethics

As already indicated, global biblical ecological ethics requires global or universal ethical norms.[14] It is important to note here that biblical ethics is not necessarily Christian but may also be Jewish. Here we shall concentrate especially on Christian ethics. I maintain that a biblical foundation for Christian ethics should consider the whole Bible and its teaching about the Trinity: God Father, God Son and God Holy Spirit and their relation to the whole creation and to human beings, specifically. Let us shortly describe the relationship between God and his creation as a whole and then God's special relation to the human being.

3.2 The relationship between God the Creator and his creation

The Bible tells us that everything that exists is created by and is absolutely dependent on God for its existence. Thus, there is a clear and infinite difference between God and his creation. Furthermore, God seems to have left something of himself in creation, in general, and in the human being, in particular (Gen. 1:26). For, with respect to his creation of each species, God said it was good but after he created the human being, God said that the whole creation was very good (Gen. 1:31). What God has left in creation is, first of all, his glory and goodness. Concerning God's glory, we can read in Psalm 19:1 that "The heavens declare the glory of God; and the firmament sheweth his handwork" (*cf.* Romans 1:19f). As to his goodness, Gen. 1:31 states that God saw his work and it was "very good."[15] These biblical passages allow us to state that because creation reflects God's glory and goodness, it has an *intrinsic value*, i.e., value in itself (*cf.* Psalm 104: 25, 30).[16]

For the sake of clarity we distinguish here between the concept of *intrinsic* value and *extrinsic* or instrumental value. By the former is meant "the character of being good or valuable in itself or as an end for its own sake" (Runes, 1974, 330). By the latter is meant "the character of being or of having a value as a means to something" else, i.e., an end or goal (Ibid.). The following phenomena are regarded by some ethicists as having intrinsic value: life, health, freedom, quality of life, fellowship, friendship and peace. As examples of phenomena that have only extrinsic (instrumental) value we can mention: money, house, car, airplane, computer, and medicine (*cf.* Holte, 1977, 48). What has or is regarded as having only extrinsic value serves as a means to attain what is seen as having intrinsic value. Thus, medicine is used as a means to attain health as an end. If creation or nature is regarded a having only extrinsic or instrumental value, from the human viewpoint, then it can be used for any human purpose, good as well bad one. However, if from God's viewpoint (Lat. *sub specie aeternitatis*), it is regarded as having intrinsic value – as it seems to be the case –, then it can be used only for god purposes, like human survival, attainment or preservation of human health and human flourishing. This view would exclude the exploitation of God's creation that should be respected by its own intrinsic value – for its own sake – and not only for its possible instrumental value, as a means for human and other living beings' survival. However, even if creation has an intrinsic value, it seems to include phenomena with different degree of intrinsic value, so that they may be hierarchically related to one another in terms of means and ends. For example, a person may sacrifice him-/herself for the sake of the kingdom of God (as martyrs do), at the same time he/she may use animals as food. But to exploit and pollute nature in the way that industrialized countries are doing goes beyond God's view of and purpose for his creation. It is to violate God's command to Man to respect and preserve the intrinsic value of creation. It is to forfeit the responsibility of being the good steward of God's creation.

3.3 The whole Reality as constituted by a hierarchy of intrinsic values

There is a tradition in Christian theology, according to which the whole reality – God and creation – encompasses hierarchical levels of reality, each level having a given intrinsic value related to one another as follows: God, angels, humans, animals, plants and inorganic entities. God, who has the highest form of reality, also has the greatest intrinsic value (Dignity) in the hierarchy, whereas inorganic entities have the lowest form of reality and also of intrinsic value (Hof, 1985, 46, 79; Ramsey, 1978, 280). There are, at least, three strong biblical reasons to regard all living beings as

having intrinsic value. First, after having created them, God said that it was good (Gen. 1:25). Second, God made a covenant with them with a promise to preserve them. In Gen. 9: 8-9 we can read: "Then God said to Noah and to his sons with him: *I now establish my covenant with you and your descendants after you and with every living creature that was with you* [..] every living creature on the earth" (Italics added.) And Gen. 9: 12-13 underscores that the "covenant is for all generations to come".[17] Third, God appointed Man to care for creation. Since God created, blessed and made *a covenant* with the different species, and since God appointed the human being as the steward of his creation, then the human being has a religious and moral obligation to respect and protect all God's creatures, i.e., the living beings and their environment for their own sake and not only as means to attain human ends. It is also relevant to emphasize here that God want to regenerate the whole creation (*see* Isaiah 11, Isaiah 65: 17-25 and Rom. 8:19f; 2 Pet. 3:11; Rev. 21). The above mentioned covenants put a definite limit for what humans can do in relation to God, fellow humans and all the other beings. For, as Thomas Aquinas affirms, "only by adhering to an extrinsic divine will embodied in a covenant freely bestowed could one escape the snares of passion or *eros*" (Burrell, 2001, 218). I regard the norms implied in the various covenants as basic constituents of the foundation of a biblical ecological ethics.

3.3.1 The special relationship between God and humans

Although, from God's perspective, the whole creation has intrinsic value, the human being has a unique intrinsic value distinct from the intrinsic value of the rest of creation (Gen. 1:26; Psalm 8). In Kant's term everything has a price but the human being has none, it is inestimable, because it has dignity. The ontological foundation of human dignity is partly the image of God (Lat. *Imago Dei*) in the human being and partly God's covenant with Man (Gen. 9: 12-13). It is, however, controversial what God's image became after the fall.[18] There are many biblical passages which entitle us to affirm that Man still has some kind of divine nature and a special relationship with God. And through faith in Christ, God's image in Man will be completely recovered or rebuilt (Rom. 8:29, 2 Cor. 3:18). God's special covenant with the human being imposes responsibility on the latter. First, God made a covenant with Noah, then subsequently with Abraham, Israel people and at last with all people through Jesus Christ (*cf.* Mt. 26: 26-30; Lk. 22: 20f; Eph. 2: 13-15f; Hebr. 10:16, Rev. 5:9). Although all human beings are responsible before God, a Christian person's responsibility is enormous (Mt. 5:44; 22:48; Rom. 2:12; Col. 1:28; James 2:12). It is the latter that I want to analyse in what follows. "Being made in God's image" (Falcke, 1987, 18), can be interpreted as meaning "being made jointly responsible as humanity for one's fellow creatures." (Ibid.). By responsibility is meant here the power for performing a given action or for refraining from doing it. In both cases one is morally accountable.

3.3.2 Man's fourfold responsibility as necessary for a biblical ecological ethics

Both man's stewardship for God's creation and God's special covenants with him impose on the latter a fourfold responsibility expressed in his love: for God, for himself, for his fellow human beings and for the rest of creation. To love God's creation means to respect and protect it. It is an integral part of Man's stewardship for God's creation. These four forms of love express Man's fourfold responsibility before God and are necessary for biblical ecological ethics. An underlying thesis in what

follows is that the neglect, boundless consumerism, and exploitation of nature leading to ecological imbalance and risk of global catastrophe, e.g., negative climate change, can be seen as a bad consequence of partly the lack of Man's love for God and partly the lack of reciprocal love among human individuals, groups and nations, expressed in oppression and injustice at various levels of human relationship: regional, national and international. Hence man's love for God and for fellow-humans is the most basic precondition for ecological balance. Therefore, the analysis in what follows will concentrate on these two forms of love and their interrelationship.

3.3.2.1 Man's love for God, love for neighbour and their interrelationship

Man's fourfold responsibility before God can be ultimately explicated in terms of Man's love for God. The great love commandments, contains a religious duty to love God and an ethical one, to love one's neighbour as one self. To love God means to have faith in him, obey him, worship, glorify, respect/show reverence and gratitude to Him.[19] This way of loving God is well expressed both in the OT and NT (Ex. 20: 1-18; Deut. 5: 1-2; John 14:15; 1 John 5:3). As Christians our neighbour is anybody that may be in need of help, even our enemies, as illustrated by the parable on the Good Samaritan (Lk. 10:25-37; *cf.* Mt. 5:44; Lk. 6:2f).[20] As this parable shows, love for neighbour is expressed not only in respect for the neighbour's dignity, integrity and basic rights, but also in service to him/her such as to help him/her to satisfy his/her fundamental needs and to relieve his/her suffering.[21] The parable also shows that to love the neighbour is to obey a universal God's commandment (*cf.* John 14:15: 1 John 5:3). The difference between the two kinds of love can be explained as follows. They are directed to two ontological entities which are infinitely and qualitatively different: (i) God the Creator who is divine, holy, infinite, omnipotent, omniscient, love, provident and self-sufficient, i.e., without any need, and (ii) the human being that is created, finite, absolutely dependent on God for his entire existence and is full of needs to be satisfied by God. The close relationship between the two forms of love and Man' love for God's creation can be described as follows. All the four forms of love are closely related to one another. God's love for Man is prior to and a precondition for Man's love for God (1 John 4:10f, 19). This means that God (a) takes initiative and shows his love first (*cf.* Ramsey, 1978, 129). Man's love for God is (b) a reaction to God's love for him, expressed, *inter alia*, in faith, gratitude, humility obedience, reverence to and worship of God. Man's love for his neighbour is an articulated consequence of Man's love for God (Ramsey, 1978, 129). In other words, God's love for Man is a necessary condition for Man's love for God. The latter is a necessary condition for Man's authentic love for himself and his fellowmen (Barbosa da Silva, 1989/1999, 120). A consequence of Man's love for God is his love for his neighbours and creation. The two latter forms of love are a responsive and obedient love.

3.3.2.2 Love as the highest principle of Christian ecological ethics

As a universal ethical principle (expressing obligation) and as the highest Christian virtue, love is the basic element of Christian global *ecological* ethics (*cf.* Gustafson, 1996, 2). The essence of Christian love (Gr. *Agape*, Lat. *Caritas*) is described in 1 Cor. 13: 1-13). As an ethical norm love expresses an ethical duty which entitles our fellow humans to have moral claims on us as Christians. As an ethical duty Jesus summarizes it in the *Golden Rule* (hereafter – GR) in Mt. 7:12. Some ethicists interpret the GR in a way that tends to reduce it to a universal rule or principle for secular, humanist social

ethics, loosing thereby its Christian distinctiveness (*cf.* Holte *et al*., 1977, 148f). They argue that the GR occurs in almost all cultures (Ibid., 142, 154) and that its normative validity is in principle recognizable and acceptable by all people.

Without going into details here, I want to argue that in the context in which Jesus recommends the GR – the Sermon on the Mount – it is intended to be the most fundamental principle of exclusively Christian ethics for the following reasons.

First GR can be interpreted in two different forms: a positive and negative one:

- The *positive* form: "Always treat others as you would like them to treat you". Mt. 7:12.
- The *negative* form: "Never treat others as you would not like them to treat you".

It should be noted that it is in its negative form that the GR occurs in the great world religions. In Judaism, although it has a positive form in Lev. 19:18, it was definitively formulated by Rabbi Hillel as: "*What is hateful to yourself, do not do to your fellow man. That is the whole of the Torah and the rest is but commentary. Go and learn it*" (Bloch, 1984, 200).[22] In its positive form the GR is said to occur only in Buddhism, Confucianism and Christianity (Spooner, 1913, 311). It is also relevant to emphasize here that it is easier to fulfil the negative form of the GR than to fulfil the positive one.[23] According to Abraham P. Bloch (1984) the principal reason why Hillel formulated the GR negatively is to enable the "heathen" to be "in compliance with the spirit of the Golden Rule" (Ibid., 200). That the negative form of the GR is easier to fulfil than the positive one is illustrated by the fact that, in certain situations one can fulfil the following negative norms without doing anything: "You shall not kill", "you shall not lie", and "you shall not steal".[24] By contrast, to obey or fulfil the *positive* form of the GR requires of *us* moral character or virtue, efforts, engagement, compassion, motivation and active action. Despite the difficulty of fulfilling the positive form of the GR, Jesus commands his disciples to follow it (Mt. 7:12; 22: 37-48; Lk. 6:31).

Second, Reinhold Niebuhr (1963, 65) recognizes that negative moral rules only express a minimum of justice that is necessary to create and maintain order in society. He also affirms that only a minimum of requirement can be legally enforced (Ibid.). *Mutatis mutandis,* we can say that only a minimum of requirement can be *morally* enforced through moral imperatives. Perhaps this is the explanation why it is the negative form of the GR that seem to occur in most culture and world religions.

Third, for any person, anywhere, to obey the GR as a moral obligation it is not sufficient that the GR's normative legitimacy is, in principle, intuitively grasped by all people (Holte *et al*., 1997, 142). One must also be motivated to obey it (cf. Socrates' question above). In the context in which Jesus recommends it – the Sermon on the Mount – the ultimate justification for its universal normative validity is God's benevolence toward all people (Mt.5: 43-48; Lk. 6: 32-35; Acts 10). The context also makes it clear that it is as a follower of Jesus that one can be willing (motivated) to love all people even one's enemy (*cf.* Lk. 10: 25-37; Acts 10:34f). As Christians "we find the basic motive for ethical conduct in Man's response to God as he makes Himself known in his wisdom and goodness" (Braybrooke, 1992, 38). Without the willingness to obey God as Creator and *Father* of all human beings – who loves them equally –, and without following Jesus as the Saviour of the world, one may ask him-/herself: Why should I love all people including my enemies, even if it is right and is my obligation to do so? Hans Küng states the problem of motivation concerning the GR as follows:

> "For instance is the "*golden rule*", accepted by many religions and philosophers and at least by Kant, so obvious that we all know what to do when the person I must treat as I want to be treated myself stands clearly in my way, in the way of my plans, my policy? How do we know which policy is moral as a whole, which science is truly human, which civilization or form of economy is humane? Even in such fundamental questions as love and hate it is difficult to explain why I should love and not hate. *Scientifically considered*, is hatred simply worse than love? 'There is no logically stringent reason why I should love and not hate, as long as this hatred does not put me at a disadvantage in my social life.' Why should not war be as good or as bad as peace, freedom as good or as bad as oppression? 'For how can it be proved exactly that I should not hate if I feel like it? *Positivism knows of no authority transcending man* which might distinguish between helpfulness and greed for gain, kindness and cruelty, cupidity and self-denial. *Logic too is dumb*, it gives no preference to moral dispositions' [..] For all the foregoing it is completely clear that the *Christian lets Christ tell him* what is essential even for practical action. But does this solve all problems in practice?" (Küng, 1978, 540; *cf.* Küng, 1980, 692f) (Italics added).

My answer to Küng's last question is: it does not because, as Aristotle, Hume, and others answer Socrates' question on the problem of motivation for action, it is not sufficient to know what one ought to do in order to do it. One needs also motivation. Thus we can say that the ultimate motivation for fulfilling the GR's positive form addressed to all people is the Christian life style (Lat. *imitatio Christi*).

A quite different interpretation of the GR is made by Swedish moral philosopher Ingemar Hedenius (1977, 305) who uses the GR to justify active euthanasia, when he points out that a physician confronting a patient's enormous suffering should ask himself: "what would I like to be done to me that is in my best interests, if I were in the same situation as the patient"? His answer: "I should give him/her active euthanasia, since I would wish to have it myself" (Ibid.). This example shows that the GR as Jesus interprets and uses it presupposes a given context of interpretation, one in which human life is holy and inviolable and taken as a God's gift and property that endows it with dignity. Inserted in different views of life the GR may acquire different and even contradictory meanings. Then it may loose its cross-cultural character of ethically binding norm.

3.2.2.3 Love as the most basic virtue of Christian ethics

The great, love commandment, as an ethical norm, tells the Christians what to do, but it does not motivate them to do what they ought to do. To be motivated to do their obligations Christians need Christian virtues – acquired in the Christian life style through the imitation of Christ. In biblical terms, the essence of virtue ethics can be expressed as: a good tree produces good fruit (Mt. 7:17). According to 1 Cor. 13: 1-13, and Gal. 5:22, love includes all Christian virtues. As the basic virtue of the Christian ethics, love is described in the parable of the Good Samaritan as *compassion* (Lk. 10: 25-37). Compassion includes in itself other virtues as sympathy, altruism, justice as fairness, respectfulness, truthfulness, trustworthiness, benevolence, and engagement for the welfare of others.[25] While love as a duty tells us it is our duty to act for the benefit of others (the principle of beneficence), love as virtue (the virtue of benevolence) motivates us to do our duty. Thus, it is the Christian virtue of love that enables Christians to practice the duty of Christian love directed even to the enemies. To fulfil this duty comprises the fulfilment of two necessary conditions of global ethics, namely: to identify oneself with all people and to respect all people as

having the same value, dignity and basic rights. Christian virtues are acquired in the Christian life style (Lat. *imitatio Christi*). Therefore, while for example humanists are motivated by their view of human being as equal in value and rights, Christians – though endorsing human equality – get their motivation from their belief in God as love and their commitment to Christ the Saviour of the world. Despite this commitment and owing to his/her dependence on God's grace "It is [..] natural and inevitable that the faithful should regard genuine acts of love as proceeding from propulsions which are not their own, and should confess with St. Paul, 'I, yet not I, But Christ that liveth in me' " (Niebuhr, 1963, 133). Talking about a Christian individual's knowledge of his/her moral obligation and what motivates him/her to fulfil them in concrete actions, Karen L. Bloomquist (1987, 271) emphasizes "the moral power of the indwelling Christ" (as moral empowerment) in what follows:

> "The ethical question is not only what ought to be and could be, but also what hinders us from acting. Knowing there are injustices and exclusions that go against what we believe, or that changes are needed, is not by itself sufficient for ethical action. Thus, attention needs to be given to how moral agency is *empowered*, especially through the relationality grounded in what it means to be a *communion*. [..]. The point is that the self is related or interconnected with God and with others, including the rest of creation. Luther focused especially on the tension between standing as human beings before God (*coram Deo*) and before human beings (*coram hominibus*). [..] For Luther, moral agency becomes a function of communion – the moral power of the indwelling Christ in the face of human inability to act" (Bloomquist, 1987, Ibid.; *cf.* Küng, 1987) (Italics added).

Empowerment in this sense is transformation or sanctification (Rom. 12, Fil. 2:5f). The essence of this quote expresses an ecumenical consensus regarding the relationship between Christian dogmatics and Christian ethics, i.e., between teaching and acting, believing the Gospel and living it out among all kinds of people, all of which God wants to save (1 Tim. 2:4). God also intends to "save" all his other creatures as the consequence of human redemption (Isaiah 11; 65: 17-25; Rom. 8:19ff; 2 Pet. 3:11; Rev. 21).

4. Ecumenical consensus on God's salvation plan and – Christian ecological ethics

A Christian global ecological ethics should comprise the ethical norms implied in what can be regarded a "beginning ecumenical consensus" among the Orthodox, Roman Catholic and Protestant Churches on God's comprehensive will to save both humans and the rest of creation. The consensus can be summarized as follows:

> "The biblical message of salvation does not only apply to the individual human being in his or her inner and social-political life. It also embraces physical life and the world of nature.
>
> What God's people have said about creation is strongly influenced by their experience of salvation. But statements about creation are not to be interpreted exclusively as statements about God. [..].
>
> The doctrine of Christ must take seriously the incarnation, the cross of Christ and the bodily resurrection. Jesus proclaimed the nearness of the kingdom of God for humanity in its historical and physical existence. He used the world as a parable for God's sovereignty.
>
> The raising of the Crucified from the dead does not mean that God leaves the world behind, but that he gives it the new dimension of hope. Reality is a process open to

> the promised-but-not-yet-realized future, which is anticipated in the resurrection of the Crucified. The kingdom of God is related to the creation in both nature and history. When Christian eschatology speaks of the end of the world and the Last Judgement, it is not expressing a denial of the world but a critique of the world in the interest of its renewal" (Falcke, 1987, 17).

5. Bearing witness as a way for Christian ecological ethics to impact in the world

As already emphasized, Christian ethics is not only a set of norms to be followed.[26] It is a virtuous life style acquired through the imitation of Christ. To impact in society it must be lived out in acts expressing Christian love. It is through Christian individuals' way of living according to Christian norms and virtues – i.e., through a true *imitatio Christi*, that Christian ethics can impact on the local community and the world at large. Therefore, Christians should preach and teach ecological ethics based on all the three articles of faith.[27] Specifically, Christian ethics must emphasize Jesus' teaching and call to discipleship. And to base Christian ethics on the belief in Trinity is not incompatible with human "natural reason" (Gustafson, 1981, 74).[28] Instead, such a teaching corrects, illuminates and embraces human reason. Alasdair MacIntyre makes this plain by stating the relationship between faith and reason (ethics) as follows:

> "From the fact that we can at one stage in our progress towards God evaluate the divine claims, using *a standard of justice* acquired and elaborated independently of the knowledge of God, it does not follow that in so doing we are judging the Word of God by something external to it. This may indeed seem to be the case if we restrict our attention to that preliminary stage. But if we progress beyond it, something we are able *to do rationally* only because and in so far as we first assented to the divine claims because *we judged them to be just* (and also, of course, true), then we discover, as our analogically and historically ordered concept of justice develops, that the standard by which we judged God is itself a work of God, and that the judgments which we made earlier were made *in obedience to the divine commands*, even although we did not have recognized this at the earlier stage. God, it turns out, cannot be truly judged of by something external to his Word, but that is because *natural justice* recognized by *natural reason* is itself divinely uttered and authorized [..]" (MacIntyre, 2001, 583) (Italics added).

MacIntyre touches upon an aspect of Aquinas' ethics, according to which "God alone can [..] move it [human will] freely in such a way that it moves itself" (Burrell, 2001, 215). A similar view is held by James Gustafson who compares an anthropocentric view of life with a theocentric one and holds that the latter *corrects* human "visions," "rational activities," "order of the heart," (Gustafson, 1981, 308) perception and interpretation of reality. Or, that "Christian experience and beliefs" contribute to ethics by qualifying: "(1) the reasons for being moral, (2) the character of the moral agent, and (3) the point of reference used to determine conduct" (Gustafson, 1975, 173).[29]

Concerning (1), Gustafson states: "One is not a religious person in order to have reasons of mind and heart to be moral; rather, one is religious as a consequence of experience of the reality of God, and this experience requires that one be moral" (Ibid.). Gustafson also says that "Christianity offers reasons for morality itself, and reasons for persons to be moral" (Ibid.). One reason for being moral is the experience of gratitude to God and dependence on him. This shows the close relation between Christian ethics and dogmatics, i.e., Christian ethics is an integral part of the Christian faith.[30] Therefore, it may be difficult or practically impossible for non-Christians to obey Christian

ethics as exposed in the Sermon on the Mount (Mt. 5ff).[31] Although specific Christian norms are endorsed only by Christians, they are however applicable to all humans, at least, in the sense that they can promote the welfare of all people. St. Paul declares that "Love works do no harm to one's neighbour" (Rom. 13:10).

Gustafson's point (2) above is about Christian virtues. As Gustafson emphasizes, "to experience the reality of God with special clarity through the Christian story [..] has, and ought to have, the consequences of nourishing (if not creating) loving, hopeful, and faithful disposition [moral virtue] in Christians" (Ibid.). So defined, moral virtues, because they strengthen our will and desire to do what is morally right and good – are necessary for motivating our acts because, as already indicated, sometimes we know what we should do, but have no desire or power/motivation to do it (*cf.* Rom. 7: 14-25). Christians acquire moral virtues by imitating Christ (through sanctification, Gr. *theosis*[32]) and through the indwelling and guidance of the Holy Spirit. In this way, they may become ethical models with highly moral integrity to be imitated by others. This can be possible if Christians live as they teach/preach. A person of highly moral integrity is consistent in his/her action and " [..] is willing to bear the consequences of her convictions, even when this is difficult, that is, when the consequences are unpleasant" for him/herself (McFall 1987, 9).[33] Concerning his point (3) above, what Gustafson (1975, 173) calls "the point of reference used to determine conduct", he declares that "certain action-guiding values and principles can be inferred from religious beliefs as normative for those who share some common Christian experience of the reality of God" (Ibid.). Thus, Christian faith and life constitute *the conceptual framework* from which Christians infer and in terms of which they interpret and apply ethical rules and principles to concrete situations. For example, the commandment "you shall love your neighbor as yourself" is "an action guiding principle that is inferred from the theological assertion that God is love" (Gustafson 1975, 169). In other words, the Christian *belief* that God created the human being in his image, loves all humans, wants to save them all through Jesus Christ, and that Christians ought to obey Jesus' commandments, is the conceptual framework or world view that tells the Christians who are their neighbours. This framework – which implies a fourfold responsibility as previously emphasized – and the new life in Christ (Gal. 2:20) give them the reason and motivation for loving all people (neighbours). I think that this is so, because I believe that "the human values and moral principles to which agents are committed affect their [moral] discernment" (Gustafson, 1981, 337) and action in a positive sense. Therefore, I claim that "Christian theology and faith bring distinctively valuable emphasis and practices [..]" (Gustafson, 1981, 24; 2007, 42-51) to the applications of Christian ethics, e.g., to health and ecology. Christian anthropology – an integral part of the Christian conceptual framework – by affirming the sanctity and dignity of human life is the basis of the inviolable dignity and basic rights of all humans (Gustafson, 2007, 36f; 1996, 70f). This is the most basic ethical basis of a global Christian ecological ethics.

6. Summary and concluding remarks

The biblical foundation of global Christian ecological ethics is inferred from the beliefs that: (1) God has created everything with intrinsic value, but put his image only in the human being, which gives it its specific value, i.e., dignity, (2) God made covenants with both the human and the other living beings, and (3) God commanded the human being to protect, preserve and care for the rest of creation. From (1) to (3) a hierarchy of intrinsic values inherent in creation can be inferred. The various degrees

of intrinsic values require of Christians due respect and impose on them a fourfold responsibility for the various levels of reality, being God the Ultimate Reality with the highest intrinsic value for which all other intrinsic values can be seen as means to, i.e., the *Telos* to which everything strives and for which everything is created (Rom. 11:36). Human fourfold responsibility is expressed in the various covenants between God and the different living species and it is summarized in the love commandments. These covenants impose a definite limit for humans' actions toward creation. This shows God's providential care for the whole creation, which is very relevant for the foundation of a biblical ecological ethics. This ethics also presupposes the biblical truth that all human beings are brothers, since their have the same Father (God) (*cf.* Art. 1 in the UN Universal Declaration of Human Rights). From this perspective, the moral obligation of Christian ecological ethics is imposed to Christians, but its goal and the means to attain it are open to Christians as well as all persons of good will.

REFERENCES

1 *See* online: http://en.wikipedia.org/wiki/Ecology

2 Donnelley (2000, 36) and Gustafson (2007, 41).

3 For more about "ecology" *see*: http://en.wikipedia.org/wiki/Ecology

4 A reference is made here to Begon M. *et al.* (2005).

5 *See* online: http://en.wikipedia.org/wiki/Ecology

6 *Descriptive ethics* studies the actual norms and values in a given culture. It is a description of what moral perception and praxis exist in different cultures. *Analytical ethics* or *meta-ethics* makes a philosophical analysis of the relationship between ethical terms (such as, good, right, responsibility and duty) and reality. Thus it studies the ontological, epistemological and semantic aspects of ethics or ethical discourses. *Meta-ethics*, like descriptive ethics, does not recommend any norm for human conduct (*cf.* Frankena, 1973, 35-59 and 95-116).

7 There are two types of consequence ethics: ethical egoism and utilitarianism. For the former an action is right if and only if it has good consequences for the moral agent. For the latter an action is right if and only if its good consequences can promote the happiness of as many people as possible.

8 Bernstein (1995, Ibid.). Jonas' assumption does not necessarily take into consideration the intrinsic value of nature, if humans care for nature only because a health nature guarantees human existence. This is also an anthropocentric ethics which attributes nature only an extrinsic, instrumental value.

9 Natural law theories affirm that moral obligation or imperative is imposed by human reason. Kant calls this obligation "a command of reason", i.e., "an imperative". *Cf.* Kant 1956/1975, 126.

10 George (2001, 17) presents a constructive critique of the view that "what moves people to act are feelings and desires, and not reasons". This view seems to be well established among moral philosophers since David Hume, who considers reason as "the slave of passions", [..] "people's ends are necessarily given by their feelings and desires, and reason's role is limited to identifying efficient means to these ends" (Ibid., 18).

11 God's love "forces" us to do what is right and good (2 Cor. 5:14). Niebuhr (1963, 62) states: "Prophetic Christianity [..] demands the impossible; and by that very demand

emphasizes the impotence and corruption of human nature [..]". And Kant declares: Christian ethics, because it formulated its precept as pure and uncompromising [..] destroyed man's confidence of being wholly adequate to it, [..] but it reestablished it by enabling us to hope that, if we act as well as lies within our power, what is not in our power will come to our aid from another source, whether we know in what way or not. Aristotle and Plato differed only as to the origin of our moral concepts" (Kant, 1960, 132, 127).

12 For the relation between ethics and world view *see* Donnelley (2000, 40); Barbosa da Silva (2007, 97).

13 For Christians' and Jews' view on these God's properties *see* Braybrooke (1992, 38).

14 A norm is a formulation or a rule containing at least one value, e.g., "you shall love your neighbour." The value here is "love".

15 According to Dyrness (2001, 151), the goodness of creation includes its beautifulness. Thus, the biblical concept of ethic implies beautifulness. This is an idea defended by for example Saint Augustine.

16 Given that "aesthetics is the mother of ethics", as Joseph Brodsky (1987, 4) defends, then we can say that God's creation reflects not only his glory but also his goodness.

17 Other relevant biblical passages for ecological ethics are: Gen. 1:26; Lev. 25: 23-24; Psalm 96: 10-13 Jer. 2:7; Isaiah 24: 4-6; Isaiah 43:20f and 65: 17-25; Rom. 8:19f.

18 For the substantial, relational and functional interpretations of God's image in Man *see* Chia *et al.* (2004, 3).

19 For the difference between the four types of love *see* Lewis (1998).

20 For the love commandments *see* Green (1992).

21 For the concept of fundamental needs *see* Beauchamp & Childress (2009, 242).

22 At least from Jesus' time onwards the negative form of the GR seems to be central to Judaism. The term "neighbor" or "fellowman" is translated from the Hebrew *lereacha* (Bloch, 1984, 198-200).

23 It should be noted that 9 of the 10 commandments in the Bible are negatively formulated (Ex. 20). *Cf.* Barbosa da Silva, 2004, 84f.

24 According to the essay *Towards a Global Ethic* (1993, 4-10), these three norms exist in almost all religions.

25 *Cf.* Beauchamp & Childress, 2009, 38f. *See* Nussbaum (1996, 37f) on the relationship between Justice and compassion.

26 This section, i.e., last part of this essay is more or less the same of the article by Barbosa da Silva (2009b).

27 The doctrine of the natural law (associated with natural revelation and compatible with the first article of faith) was central to Roman Catholic social ethics for Christians and all people of good will until Vatican Council II. It is also the basis of Luther's worldly kingdom that still dominates ethical thinking among Protestants in Scandinavia. However, to emphasize the natural law or Luther's worldly kingdom as the common ground (grasped by human reason without faith), for an ethics for Christians and non-Christians – despite the fact that it constitutes a basis for dialogue between them – tends to eliminate what is genuinely Christian from social ethics. *Cf.* Barbosa da Silva, 1998/1999.

28 Here, on p. 74, Gustafson refers to John Howard Yoder's view of Christian ethics.

29 *Cf.* MacIntyre, Ibid.; Kant, 1956, 132, footnote no. 2; Gustafson, 1975; Niebuhr, 1963, 19f.

30 For the relationship between the concept of morality and ethics, the concept of the human being, and philosophy of life *see* Barbosa da Silva (2009a, 96-8).

31 *Cf.* Kant, 1956, 132, note no. 2; Gustafson, 1975; Niebuhr, 1963, 19f.

32 Chia (2011) points out the centrality of sanctification in the Orthodox, Roman Catholic, and Protestant churches, even though it is described in different terms.

33 Persons of highly moral integrity are, e.g., Socrates, Jesus, M. Luther King, Jr., M. Teresa of Calcutta and N. Mandela.

BIBLIOGRAPHY

Articles in magazines and periodicals

1. Barbosa da Silva A. (1998/1999a) Relationen mellan dogmatik och etik. En analys av det dubbla kärleksbudets dubbla plikter, deras inbördes relation och funktion i kristen etik [*The relation between dogmatics and ethics. An analysis of the love commandments, its double duties and their interrelationship*]. In: *Misjon og teologi, Årsskrift for Misjonshøgskolen 1998/1999*, pp. 115-153.
2. Barbosa da Silva A. (2009b) How Christian Norms Can Have an Impact on Bioethics in a Pluralist and Democratic Europe: A Scandinavian Perspective. In: *Christian Bioethics. Christian Bioethics Advance Access* [doi: 10.1093/cb/cbp004].
3. Bernstein R. J. (1995) Rethinking Responsibility. In: *Hasting Center Report 25*, No. 7, pp. 13-20.
4. Brodsky J. (1987) Joseph Brodskys Nobelföreläsning: Estetiken är etikens moder [*Joseph Brodsky's Nobel lecture: Aesthetics is the mother of ethics*]. In: *Dagens Nyheter* from 9 December 1987, p. 4.
5. Burrell D. B. (2001) Creation Metaphysics and Ethics. In: *Faith and Philosophy*, Vol. 18, No. 2, pp. 205-219.
6. Chia R. (2011) Salvation as justification and deification. In: *Trinity Theological Scottish Journal of Theology*, Vol. 64, No. 2, pp. 125-139 [doi:10.1017/S0036930611000019; ref.: SJT 64(2): 125-139 (2011)].
7. Chia R., Cooper, D. *et al.* (2004) *Bioethics. Obstacle or Opportunity for the Gospel? Lausanne Occasional Paper No. 58.* Lausanne Committee for World Evangelization, 84 p.
8. Donnelley S. (2000) *Natural Responsibilities. Philosophy, Biology, and Ethics. Hastings Center Report*, July-August 2000, pp. 36-43.
9. Elliot R. (2002) Environmental ethics. In: Singer P. (ed.) (2002). *A Companion to Ethics.* Oxford: Blackwell Publishers, pp. 284-293.
10. Falcke H. (1987) The Integrity of Creation. In: *One World*, April 1987, pp. 15-18.
11. McFall L. (1987) Integrity. Ethics. In: *An International Journal of Social, Political, and Legal Philosophy*, Vol. 98, Oct. 1987, No. 1, pp. 5-20.
12. Nussbaum M. (1996) Compassion: the basic social emotion. In: *Social Philosophy and Policy Foundation*, Vol. 13, pp. 27-58.
13. Runes D. D. (ed.) (1974) Value. In: *Dictionary of Philosophy.* Totowa, New Jersey: Littlefield, Adams & Co. 343 p.

14. Spooner W. A. (1913) Golden Rule. In: Hasting J. (ed.): *Encyclopaedia of Religion and Ethics* (1908-1926), Vol. 1-13. Edinburgh & New York: T.&T. Clark, Ltd., Vol. 6, pp. 310-312.
15. Vogel L. (1995) Does Environmental Ethics Need Metaphysical Grounding? In: *Hastings Center Report*, Vol. 25, Issue 7, December 1995, pp. 30-39.

Books

1. Aristotle (1980) *The Nicomachean Ethics*. Oxford, New York, etc.: Oxford University Press, 284 p.
2. Barbosa da Silva A. (2011) *Etikk og menneskesyn i helsetjeneste og sosialt arbeid* [*Ethics and humanity in health care and social work*]. Oslo: Gydendal Akademisk, 317 p.
3. Beauchamp T. L. & Childress, J. F. (2009) *Principles of biomedical ethics*. Oxford: Oxford University Press, 417 p.
4. Begon M., Townsend C. R., Harper J. L. (2006) *Ecology: from individuals to ecosystems*. Oxford: Blackwell, 738 p.
5. Bloch A. P. (1984) *A Book of Jewish Ethical Concepts. Biblical and Postbiblical*. New York: Ktav Publishing House, Inc., 285 p.
6. Bloomquist K. L. (ed.) (2004) *Communion, responsibility, Accountability. Responding as a Lutheran Communion to Neoliberal Globalization.* Geneva: LWF Documentation No. 50, December 2004, pp. 261-288. (290 p.)
7. Braybrooke M. (ed.) (1992) *Stepping Stones to a Global Ethic*. London: SCM Press, Ltd., 152 p.
8. Dyrness A. W. (2001) *Visual Faith. Art theology and worship in dialogue*. Grand Rapids, Michigan: Baker Academic, 188 p.
9. Erikson E. H. (1964) *Insight and responsibility: lectures on the ethical implications of psychoanalytic insight*. New York: Norton, 256 p.
10. George R. P. (2001) *In Defense of Natural Law*. Oxford: Oxford Univ. Press, p. 343.
11. Green R. M. (1992) Kant on Christian Love. In: Santurri E. N. & Werpehowski W. (eds.) *The Love Commandments: Essays in Christian Ethics and Moral Philosophy*. Washington, DC: Georgetown University Press, pp. 261-280. (307 p.)
12. Gustafson J. M. (2007) *Moral Discernment in the Christian Life. Essays in Theological Ethics*. Louisville & London: Westminster John Knox Press, 261 p.
13. Gustafson J. M. (1996) *Intersections. Science, Theology, and Ethics*. Clevland, Ohio: The Piligrim Press, 174 p.
14. Gustafson J. M. (1981) Ethics from a theocentric perspective. In: *Theology and ethics*, Vol. 1. Chicago: Chicago University Press, 345 p.
15. Gustafson J. M. (1975) *Can ethics be Christian?* Chicago/London: University of Chicago Press, 191 p.
16. Hedenius I. (1977) Den egocentriska metoden och dödshjälp [*The egocentric method and euthanasia*]. In: Grenholm C.-H. & Hemberg J. (eds.) (1977) *Etiska texter* [*Ethical texts*]. Lund: Verbum. Håkan Ohlssons, pp. 304-307.
17. Hof H. (1985) *Gudsuppfattning och människosyn* [*Conception of God and view of Man*] Del 1. Uppsala: Teologiska Institutionen, 187 p.
18. Holte R., Hof H. *et al*. (1977) *Etiska problem* [*Ethical Problems*]. Lund: Verbum, Håkan Olhssons, 274 p.

19. Jonas H. (1984) *The Imperative of Responsibility. In Search of an Ethics for the Technological Age.* Chicago & London: University of Chicago Press, 255 p.
20. Kant I. (1981) *Groundwork for the metaphysics of moral/* Transl. by James W. Ellington, 2nd ed. Indianapolis & Cambridge: Hackett Publishing Company, 72 p.
21. Kant I. (1956/1975) *Critique of Practical Reason.* Indianapolis: The Bobb-Merrill Company, Inc., 168 p.
22. Küng H. (1978) *On Being a Christian.* New York: A Wallaby Book, 720 p.
23. Küng H. (1980) *Does God Exist? An answer for Today.* London & New York: Collins Fount Paperbacks, p. 839.
24. Küng H. (1987) *Why I am Still a Christian*. Edinburgh: T.&T. Clark, Ltd., 82 p.
25. Lewis C. S. (1998) *The Four Loves*. London: Fount, 134 p.
26. MacIntyre A. (2001) Which God Ought We to Obey? In: Peterson M., Hasker W., Rechenbach B. and Basinger D. (eds.). *Philosophy of Religion. Selected Readings.* New York & Oxford: Oxford University Press, pp. 575-584.
27. MacIntyre A. (1984) *After Virtue: A Study in moral Theory*, 2nd ed. Indiana: University Notre Dame Press, 252 p.
28. Niebuhr R. (1963) *In Interpretation of Christian Ethics*. San Francisco: A Devision of Harper Collins Publishers, 150 p.
29. Nygren A. (1969) *Agape and Eros*. New York: Harper and Row, 764 p.
30. Odum E. P. (2005) *Fundamentals of Ecology*. Philadelphia: W. B. Saunders Company, 546 p.
31. Outka G. (1972) *Agape. An Ethical Analysis*. New Haven & London: Yale University Press, 321 p.
32. Ramsey P. (1978) *Basic Christian Ethics*: Chicago & London: University of Chicago Press, 404 p.
33. Shelp E. E. (ed.) (1982) *Virtue and Medicine. Exploration in the character of Medicine.* Dordrecht/Boston/Lancaster: D. Reidel Publishing Company, 363 p.
34. Williams B. (1985) *Ethics and the limits of philosophy.* Cambridge, MA: Harvard University Press, 230p.

Sections of books

1. Barbosa da Silva A. (2009a) Autonomy, dignity and integrity in health care and social services – a moral philosophical perspective. In: Aase H. S., Halvorsen R., and Barbosa da Silva A. (eds.) (2009) *Human Rights, Dignity and Autonomy in Health Care and Social services: Nordic Perspectives.* Antwerp, Oxford &Portland: Intersentia, pp. 13-52.
2. Barbosa da Silva A. (2007) Epilogue: a final reflection from an ethical perspective. In: Wahlberg V. (ed.) (2007) *Memories After Abortion*. Oxford & Seatle: Radcliffe Publishing, pp. 90-107. (115 p.)
3. Barbosa da Silva A. (2004) Immigrations och asylsökarens utmaningar för kristen etik [*The challenge of immigrations and asylum seekers to Christian ethics*] In: Sannes Kjell Olav *et al*. (red.). *Etikk, tro og pluralisme* [Ethics, faith and pluralism]. *Festschrift til Lars Østnor.* Kristiansand: Fagbokforlaget, pp. 75-93.
4. Holte R. (1968) Utkast till en socialetik [*Outline to a social ethics*]. In: Ingebrand S. (red.) (1968) *Fasta normer eller föränderliga*. Stockholm: Verbum, pp. 134-150.
5. *Towards a Global Ethic. An Initial Declaration.* (1993) Council for a Parliament of the World's Religions, Chicago, Illinois, 10 p.

Remote access and internet resources

1. *See* Catholic Ecology Forum Europe [online]. Available: http://www.cefe.ch/
2. Ecology [online]. Available: http://www.cengage.com/search/totalsearchresults.do?N=16&image.x=0&image.y=0&keywordall=fundamentals+of+ecology
3. Ecology [online]. Available: http://ca.wiley.com/WileyCDA/WileyTitle/productCd-1405111178.html
4. Saunders S. P. (2011) [online] *Toward A Deep Christian Ecology.* Available: http://www.atthispoint.net/editor-notes/toward-a-deep-christian-ecology/173

Kristīgās ekoloģiskās ētikas bibliskie pamati

Kopsavilkums

Dabas piesārņošana mūsdienās ir kļuvusi pa globālu problēmu, kuras risināšanai nepieciešama globāla ekoloģiskā ētika, kuras mērķis ir atrisināt ētiskās globālās problēmas, kas rodas kā sekas negatīvajām izmaiņam vidē un kas apdraud veselību, pastāvēšanas nosacījumus un visu cilvēku izdzīvošanu. Autors uzsver, ka kristieši kā Dieva kalpi ir atbildīgi cīnīties pret neseno globālo klimata izmaiņu cēloņiem un negatīvajām sekām, kas izsaka ekoloģiskās krīzes būtību. Rakstā ir veikta bibliskās antropoloģijas un ētikas pamatu morāli filozofiskā analīze kā pamats globālai vides ētikai, kas domāta kristiešiem un visiem labas gribas cilvēkiem. Autors uzsver, ka: a) globālā ētika pieprasa vispārējus morālos pienākumus un atbildību; b) kristiešiem ir vispārēji morāli pienākumi Dieva radības priekšā, kurai piemīt *iekšēja vērtība*; un c) Bībele satur vispārēji aplicējamas normas un tikumus, kas pauž mīlestību kā vispārēju motivāciju kristiešiem piepildīt savu pienākumu, darbojoties kā Dieva kalpiem. Rakstā veiktās analīzes *rezultāts* tiek piedāvāts kā auglīgs risinājums globālai kristīgajai ekoloģiskajai ētikai.

Atslēgas vārdi: antropoloģija, pamati, iekšējā vērtība, ekoloģiskā krīze, globālā atbildība

Dr. theol., prof. **António Barbosa da Silva**

Ansgar College and Theology Seminar, Norway

Address: Fredrik Fransons vei 4, Kristiansand NO-4635, Norway

Phone: +47-38106513; Fax: +47-38091459

E-mail: dasilva@ansgarskolen.no

Climate Justice as a Spiritual Challenge in an Oil-Rich Country: The Case of Norway

Klimata taisnīgums kā garīgs izaicinājums ar naftu bagātā valstī: Norvēģijas gadījums

Rev. Fr. Christofóros Schuff, Mag. theol. (Norway)
Hildegunn Marie Tønnessen Schuff, Mag. phil. (Norway)

Climate justice and fossil fuel production are addressed in this contextual Bible reading study, as we ask: what challenges does an eco-theology, addressing climate justice, pose in the context of Norway, a country which has built its wealth to a large degree on petroleum production? Based on South-African contextual Bible reading methods, a 3-step process is applied: 1) '*Seeing*' involves careful social analysis of a particular context at a particular time; 2) '*Judging*' involves reading biblical texts and assessing the context in light of these; 3) *'Acting*' means trying to identify and take appropriate action to improve the situation, based on what has been seen and judged in the first two steps.

In the first step, the global context of climate change and climate justice – an approach that combines climate and equity concerns – is presented, followed by a presentation of the case of Norway, a country with great petroleum-based wealth, but also with a self-understanding as an eco-friendly country. Turning to the Bible texts, we focus particularly on two key passages from the Old Testament (Psalm 24: 1-2 and Psalm 82: 2-4) and one from the New Testament (Luke 12: 13-21). These texts are read in light of the context of climate justice and Norway's fossil-fuel based wealth. The reading of these texts in this context inspires actions. Which actions exactly it is left an unanswered question, while several suggestions from Christians in Norway are mentioned. What is certain is that the level of ethical reflection must be raised, priorities must be reexamined, and actions, lifestyles and societal conditions must be changed accordingly. What we can conclude, then, from this contextual Bible reading exercise, is not necessarily *how*, but *that* the climate justice issue *must be tackled*, based on the biblical challenge and the ethical reflections it starts. Climate justice is a spiritual and moral challenge that needs to be contextualized and responded to.

Key words: climate justice, contextual eco-theology, Norway, petroleum

Introduction

From the 1960's onwards, we have seen what could be referred to as a quiet eco-conscious awakening in worldwide Christianity and Christian theology. Within this awakening there are different approaches and emphases, but also considerable overlap. There is a fairly broad consensus among theologians and lay people within all major denominations – Orthodox, Catholic and Protestant – that caring for creation is good and a part of human's responsibility before God, each other and creation in all its fullness (Clifford, 2008). Arguably, eco-theology has increasingly become a part of mainstream theology. But are Christians today willing to apply these noble principles to their personal lifestyles, and perhaps even more important, to the way they build and run the societies in which they live – or are these principles more comfortably maintained as abstract ideas?

Both the term and the field of eco-theology are a modern phenomenon (Schuff, 2011), but arguably the very beginning of theology, literally from creation onwards, has included this perspective considering nature as created by God – "[..] *and God saw that it was good*" (Gen. 1:10, 12, 18, 21, 25, 31). From a cross-cultural perspective we find numerous examples of creation stories which include some sort of divinity or divinities as a core part of religious world-views, traditions and as a foundational element in the diverse communal identities. Looking upon nature or the environment as a "creation", a planned creative act, emphasizes this original connection and creation's intrinsic value. The Fall of Man disrupted the "natural" order of things, negatively affecting humanity's relationship with God as well as with nature (*cf.* Gen. 3: 17-19). As St. Dorótheos of Gaza writes: "*When he broke the command and ate of the tree that God commanded him not to eat of, he was thrown out of paradise and fell from a state in accordance with his nature (καταφύσιν) to a state contrary to nature (παραφύσιν)* [..]" (St. Dorotheus of Gaza, 6th century). Following this Fall, both humanity and creation itself yearns for redemption (Rom. 8: 20-23). How we define and understand both God's as well as mankind's relationship to the created world or nature becomes a theology of creation. When this is applied to contemporary environmental challenges – as it specifically has been since the 1960's – it becomes eco-theology.

With this in mind, eco-theology can be considered a contextual phenomenon, a result of the Church actively engaging with its context. When translated into practical consequences, eco-theology is necessarily and even more obviously contextual. And the other way around: Eco-theology in context challenges and inspires practice. In this article we will look at *what challenges an eco-theology addressing climate change and climate justice poses in the context of Norway, a country which has built its wealth to a large degree on petroleum production*. When we choose a contextual eco-theological approach, it is because it is our view that eco-theology at its best combines 'eco-spirituality' with 'eco-activism' – in other words, the spiritual-theological and practical aspects of eco-theology are most fruitful when connected.

Method and structure

This article presents an interdisciplinary case study, combining theology with a social science approach, resulting in a contextual eco-theological analysis of the concept of climate justice and the case of Norway. As theological sources for our analysis we will bring in Biblical texts, patristic writings and more recent eco-theological

writings. These are juxtaposed with official documentation of Norway's fossil fuels wealth and media articles that discuss the paradoxes of trying to combine petroleum production with official eco-friendliness.

The purposed method is inspired by contextual Bible reading, both as expressed in various patristic texts, as well as developed in modern contexts such as in South Africa (West, 2006). West argues that all interpretations of the Bible are contextual since the reader is an active agent in the process of interpretation: "Readers always bring their concerns and questions to their readings of the Bible, even if they are scholarly questions and concerns. Our contexts, therefore, always shape our reading practice" (West, 2006, 131).

While these views can be considered common in contemporary theological hermeneutics, they can also be exaggerated in such a way that meaning production is understood as taking place almost entirely in the individual reader. Meaning, however, occurs in the *interaction* between text and readers in a certain context. After all, if every reader could construct meaning in a manner independent of the text, then what would be the point of even reading the text? Lewis and Demarest (1996) make similar points in their approach, which they call *integrative theology*, intended to be simultaneously "biblically grounded", "culturally sensitive" and "profoundly related to life" (Lewis & Demarest, 1996, 9). The point of this current contextual Bible reading exercise is, then, precisely to allow the Bible texts a voice, a significant role in meaning production, applied to a specific context – here, the context of climate change, in which we believe that the challenging and transformative potential of the theological texts can contribute to adequate responses. This implies that at least some readers find an inner meaning within the text leading them to, e.g., change their behavior accordingly.

Two aspects that we wish to emphasize in approaching societal issues and contextual interpretation are 1) that there is a communal context (*vs.* a purely individualistic approach) and 2) that this leads to the development of applied communal theologies. This is the general basis for Liberation Theology, reading the Bible from a specific social context and attempting to apply the interpretation to contemporary social issues (González, 1992, 484).

With these reflections in mind, let us return to West (2006) and the specific method of contextual Bible reading he outlines. This method, developed in the context of South Africa[1], can be summarized in the three steps, namely, SEE – JUDGE – ACT:

1. 'Seeing' involves careful social analysis of a particular context at a particular time;
2. 'Judging' involves reading biblical texts and assessing the context in light of these;
3. 'Acting' means trying to identify and take appropriate action to improve the situation, based on what has been seen and judged in the first two steps.

Contextual Bible reading, then, starts with the social reality and experience of those involved, moves into the Bible texts for a slow, careful and close reading – and finally returns to the social reality and resources and action potential of those involved.

This will also be the basic structure of this article. Following this section we will first look at the social context at hand – the global issue of climate change, the advocacy for climate justice as a response to it, and the Norwegian context ('see'). After

that, we will present Biblical texts that we suggest can address the contextual issues at hand ('judge'). And finally, we discuss how the juxtaposition of social context and Biblical texts challenges believers and inspires action ('act').

It is also possible, for our purposes here, to draw on far older traditions of interpretation than that of contextual Bible reading. Many patristic writings acknowledge practical application as a form of interpretation among other forms – "not disregarding literal interpretation, but underlining that this is only one of the forms of interpretation" (Schuff, 2011, 17). In the fourth century, St. John Cassian described four forms of interpretation to develop spiritual knowledge; the four forms being 1) historical, 2) allegorical, 3) anagogical and 4) tropological interpretation. This present article is aimed at the latter of these: "The tropological sense is the moral explanation which has to do with improvement of life and practical teaching" (St. John Cassian, Conferences, 14:8). St. John Cassian proceeds to emphasize that the first step towards spiritual learning is practical, because it is better to start by performing than by discussing and teaching what one learns from the elders: "For from teaching, the dangerous arrogance of vainglory, but from performing, the fruit of spiritual knowledge will flourish" (St. John Cassian, Conferences, 14:9). This, too, can serve as an argument for the present approach; with its focus on practical applicability as a vital part of the spiritual learning process. The general question posed by applying this approach to eco-theology is then: How can what eco-theology teaches us be applied in practice in a certain context?

In light of this reading of St. John Cassian, the *see-judge-act*-process outlined above could be extended with a fourth step following action; namely *reflect/learn*[2]. One might also argue that *acting* proceeds *seeing* in the process. The interaction between seeing/judging/learning and acting in contextual Bible reading could then more precisely be portrayed as an ongoing spiral rather than a once-off process from step 1 through step 3. For the purposes of this article, however, the three-step structure of see-judge-act is kept, as the portion of this process that will be analyzed here.

While borrowing the structure from West, it must be added that our approach differs from his recommendations in at least two significant ways. West is generally reluctant to the use of this method as a research tool, because he and his partners at the Ujamaa Centre consider it a resource to be offered "to the communities of the poor, working-class and marginalized with whom we work" (West, 2006, 148). Therefore, both as scholars and as privileged members of a wealthy society, we are not invited to use this method, at least not without doing it together with oppressed, poor and marginalized non-scholars.

In principle, we strongly agree that an approach that included this proper (according to West) use of contextual Bible reading – and therefore integrated the voices of the poor and marginalized, or in our case, those who suffer under the global injustice of climate change – would be most promising. While we could not arrange study groups of this kind for the purpose of this study[3], we will still argue that the contextual Bible reading framework is applicable to a study such as the one we are presenting here. Norway has been chosen as the case for this article because of the subject matter, our experience from the Norwegian context, and since the focus of this NORDPLUS project is the Nordic-Baltic region. And to put it simply: Norway is also a context, and so this context can be assessed in the light of Bible reading. Our goal is not to use the method "to obtain access to the incipient and inchoate historical consciousness of a particular community", as West (2006, 148) fears, but to assess self-critically the challenges climate change and eco-theology poses to *our own* particular community.

We acknowledge, however, the dangers inherent to presenting eco-theological reflections and suggestions from what is globally speaking an extremely privileged position, and have tried to balance this somewhat by using eco-theological sources from countries and continents that suffer under the injustice of climate change, that is, from the South[4], most notably from Africa. We also believe that biblical texts can challenge a privileged position – and any culture – from within when read carefully and alertly.

A situation from the climate 17th Conference of the Parties (COP17) in Durban in 2011 can illustrate how the climate issue can look very differently when seen from the North and from the South. South African bishop *emeritus* Geoff Davies challenged the delegacy of Norwegian Church leaders during a discussion there. We quote[5] the Norwegian magazine STREK, that reported:

> Geoff Davies said: – As wonderful as you are, dear Norwegians, you have to face the facts: Norway must stop drilling for more oil. The Church of Norway Council on Ecumenical and International Relations rejected his input. Suggestions like this one, they felt, were *not very constructive.* And right there we could start the debate on what it means to be a state church in a petroleum state (Finnseth, 2012).

1. SEEING the context: The issue of climate justice and Norway's petroleum wealth

As a starting point, we will base our presentation in the following on the broad consensus among climate scientists that humanly induced climate change is taking place, and that the emissions caused by the use of fossil fuels are the main cause of this anthropogenic and potentially disastrous climate change (*cf.* IPCC 2012). This is, of course, a very short version of the knowledge in a large and complex field, but while the differing views of a small minority of scientists could be discussed, that discussion is not within the scope of this article.

In this last decade we have seen a growing emphasis on *climate justice*[6] within the environmental movement. There are global campaigns for climate justice, many NGOs (Non-Governmental Organizations) advocate for climate justice, among them many churches and faith-based organizations, and scholars consider it an 'emerging field' and a promising framework for just solutions to climate change (Burkett, 2008).

So what does climate justice mean? Climate justice is an approach to the climate issue that points to the dramatic injustice inherent in climate change: The world's poor, who have done *least* to cause climate change, will suffer the *most* from it (Clifford, 2008). From an American perspective, Burkett explains:

> The emerging field of "climate justice" is concerned with the intersection of race, poverty, and climate change. It takes, as a basic premise, that the disadvantaged in the United States stand to suffer the risks of warming more severely than others, as do their counterparts in the global South. Climate justice also recognizes the direct kinship between social inequality and environmental degradation, which is not isolated to the global South (Burkett, 2008, 193).

The argument emphasizes that the CO_2 emissions that cause climate change mainly come from the North, both historically and currently. The atmosphere and other natural resources are considered common goods that are no more the property of the rich than of the poor of the world. The normative implication of this climate injustice is that the North should therefore be held accountable in terms of reducing emissions, while the South might need to maintain or even increase emissions somewhat more in their still ongoing processes of economic development.

As an example from the African context, an interfaith consultation in 2011 stated that "climate change constitutes a huge inequity for the world and its people, with Africa bearing the brunt of the effects, even though the continent is responsible for only 4 percent of global greenhouse-gas emissions" (AACC, 2011, 4). The faith leaders accordingly, in their communiqué from the consultation, ask world leaders to commit to justice and equity in the much needed and long awaited climate treaty – both intergenerational equity, that is, justice for generations to come, and justice in terms of wealthy countries assuming their historical responsibility for the situation.

Climate change will affect poor countries, cities and groups more severely in many ways. Poverty reduces a country's and a group's resilience to natural crises and disasters, that are expected to happen more frequently and intensely due to climate change. Climate adaptation efforts are generally available to the rich, not to the poor. This also applies to the phenomenon of rising sea-levels. Where the Netherlands can afford to strengthen their dikes and enhance their climate adaptation, developing countries such as Suriname are at risk of losing practically all their arable land, and a Pacific island state such as Tuvalu may disappear entirely from the map – without having the financial resources to counter the impact of climate change-induced sea-level rise. Climate change will also hit poor countries harder because these countries lie mostly in the tropics, where higher temperatures will be a lot more devastating to food production and health-related conditions, and because they are more directly dependent on primary production and natural systems for people's livelihood.

According to the climate justice perspective, our response to the climate crisis must acknowledge this injustice, and place the main responsibility for cutting CO_2 missions on the rich, industrialized countries[7]. At the same time, the global climate framework should allow for sustainable, preferably 'green' growth in poor countries.

In sum, the climate crisis and the poverty crisis are connected – and climate justice is a response to both. A reason why this perspective has been strongly supported by many churches and Christian organizations can be that it bridges Christian environmental efforts and Christian concerns for justice, two strong strands of involvement within the church. *Time for Climate Justice*, a global campaign in which the World Council of Churches and other Christian faith-based organizations (FBOs) has been very actively involved, refers to these two Christian concerns when explaining on its webpage why faith leads them to efforts for climate justice:

> God creates human beings and calls humanity to care for the earth (Gen. 2:15), to be stewards of creation. The God of the Bible, at the same time, is a God of justice who cares for the most vulnerable ones: the poor, the orphan, the widow, the stranger (Deut. 10: 18-19) (Time for Climate Justice, 2012).

As we now narrow our focus from the global to the Norwegian context, we can note that Norwegian Church Aid, the Church of Norway and the ecumenical Christian Council of Norway have been among these Christian advocates for climate justice.

The case of Norway: fossil fuel-based wealth

Norway is the largest oil producer and oil exporter in Western Europe, and the petroleum industry is the country's largest industry. The Norwegian 'oil adventure' started in the 1960's, when oil was discovered on the Norwegian continental shelf in the North Sea. Norwegian authorities have managed to secure the country's petroleum resources as a government-administered asset, so that most of the petroleum-based income ben-

efits the people of Norway: "The Petroleum Act confirms that the property right to the petroleum deposits on the Norwegian continental shelf is vested in the State" (Norwegian Ministry of Petroleum 2012). While Norway was one of the poorest countries in Europe during the first half of the 20th century, the production and export of petroleum has played a vital part in raising Norwegian wealth and welfare levels to the highest in the world.

Currently, the petroleum sector contributes with 26% of the state's revenues and 21% of Norway's GDP (Gross Domestic Product). The Norwegian Ministry of Petroleum and Energy sum up the role of petroleum in Norway's wealth in the following manner: "The petroleum activities have been crucial for Norway's financial growth and in financing the Norwegian welfare state. Over more than 40 years, petroleum production on the shelf has added more than NOK 9 000 billion to the country's GDP. In 2010, the petroleum sector represented 21% of the country's total value creation" (Norwegian Ministry of Petroleum 2012).

The Norwegian state's income from the petroleum activities is transferred to a separate fund, officially known as the 'Government Pension Fund – Global', colloquially (and henceforth in this text) referred to as the 'oil fund'. This fund was at the end of 2011 valued at NOK 3 312 billion. This corresponds to more than NOK 650 000, or more than 100 000 US dollars, for every Norwegian – and makes it the largest government-administered fund in the world. Some of the revenues of the oil fund are carefully phased into the Norwegian economy (the national budget) each year, while there is a broad political consensus as to saving most of the oil fund for future generations and the economical challenges Norway will face when the petroleum era is over. There are, however, many debates concerning the oil fund, and a set of ethical guidelines has been establishes to avoid investing in companies that violate human rights or cause serious environmental degradation.

The Ministry of Petroleum and Energy and its minister, Mr. Borten Moe, argue that Norwegian petroleum production is 'the cleanest in the world' (*cf.* also Hungnes 2008, from a Christian/environmentalist perspective). But recent figures show that petroleum production in the Middle East is cleaner on average than it is in Norway – that is, emissions are lower there (Finnseth, 2012). The validity of these Middle East figures has been contested. Still, the argument that 'clean' Norwegian oil production will benefit the global environment does not seem very solid. To argue that any petroleum production can be environmentally beneficial, when the link between fossil fuel consumption and climate change is so well documented, is a near impossible exercise. There is a broad consensus that the climate crisis calls for a speedy transition to renewable energy sources and drastic reductions in energy use – not for more oil. The reluctance to address this 'elephant in the room' creates vague and misleading rhetoric in Norwegian policy documents concerning environmental and development issues, Bjørkdahl (2012) argues.

Today the Norwegian oil industry is 'still going strong', energized by several big oil finds in 2011 (Norwegian Ministry of Petroleum 2012).

2. JUDGING in the light of Biblical texts: Reading the Bible in an oil-rich country

Even if the concept of climate justice is not found in the Bible, both creation and justice are key terms of Scripture. There are also many Biblical texts that address wealth and greed, which can be linked to the issue at hand here. From this range of

potential texts, we have chosen two key passages from the Old Testament (Psalm 24: 1-2 and Psalm 82: 2-4) and one key text from the New Testament (Luke 12: 13-21), to read in light of – and to shed light on – the context of climate justice and Norway's fossil-fuel based wealth.

In addressing the issue of climate justice, let us also venture to question of what it means to be "just" or what "justice" is. In the Biblical texts, whether in Hebrew or Greek, there is almost exclusively one root for what has been translated into English as "righteous", or alternatively "just", as an adjective and "justice" or "righteousness" as a noun[8]. Biblically speaking a righteous nation is a just nation with "just weights and just scales [..][9]" Also the word מולש ("shalom", translated many times as "peace") means just this: *balance*. It is used as an adjective in Deuteronomy 25:15 where it says, "You must have accurate and honest weights and measures [..]". These scriptures concern trade both nationally and internationally, also relevant to the framework of profiteering in the oil industry. The general practice in many modern nations, Norway included, is based primarily upon the principles of profit, which can at times drive people to, if it is profitable, use one weight here and another measure there. There are numerous examples of how Norway´s wealth has also overtly been used as leverage in both political and trade negotiations with other nations. The oil fund increases or decreases within the framework of the world market – which, at the bottom end, leaves about a billion people in extreme poverty. We see here in this brief look at 'justice' in the Bible how biblical "justice"also relates to trade and the global economy, phenomena that are often considered entirely apart from the spiritual world in which "righteousness", i.e., understood often as "holiness" in English, is a common focus. To state it plainly, to be righteous is to be just and to be just is to be righteous, and this must also apply in some way to how we both think and act in our relationship with creation.

With the contextual background that has been established up to this point, we now turn to the selected texts of the Bible, starting with the psalms.

The earth is the Lord's: Psalm 24: 1-2

[1]The earth is the LORD's and the fullness thereof,
the world and those who dwell therein;

[2] for he has founded it upon the seas,
and established it upon the rivers.

This text firmly states that the earth belongs to God, its creator, and problematizes the common understanding of Norwegians that the petroleum is 'ours'. The Norwegian authorities have in their stewardship of the petroleum wealth to a large degree succeeded in contributing to equity within the borders of Norway. But as followers of the God of all the universe, must not global justice be a more pressing concern than an exclusively Norwegian justice?

The proclamation of God's ownership of the earth also contrasts with the current practice that rich countries use disproportionate amounts of natural resources, and in the specific context of climate justice; our use of larger parts of the atmosphere for CO_2 emissions than poorer countries.

Here, the contemporary relevance of the words of St. John Chrysostom (4th century) on the communal aspect of natural elements is striking:

> "For we have all things from Christ. Both existence itself we have through Him, and life, and breath, and light, and air, and earth. And if He were to exclude us

> from any one of these, we are lost and undone. [..] the very air, earth, matter, are the Creator's, they are common to you and to your fellow-servants; just as the sun is common, the air, theearth, and all the rest. But if it be made common, both that part and all the rest have it as their own." (St. John Chrysostom, 4th century a)
>
> "God has given all things in abundance, which are much more necessary than money: the air, water, fire, the sun – all of these things. It should not be said that the ray [of sun] is enjoyed more by the rich man, less by the poor man; it should not be said that the rich man has the air in more abundance than the poor man, but all these things are equal and presented in common."(St. John Chrysostom, 4th century b)

The earth is the Lord's – thus we, who are also the Lord's, have it in common – thus, "all of humanity, rich or poor, North or South are equally entitled to enjoyment of God's bounty" (Schuff, 2011, 96).

God judges injustice: Psalm 82: 1-4

1 God has taken his place in the divine council;
in the midst of the gods he holds judgment:

2 How long will you defend the unjust
and show partiality to the wicked?

3 Defend the weak and the fatherless;
uphold the cause of the poor and the oppressed.

4 Rescue the weak and the needy;
deliver them from the hand of the wicked.

In our second text, injustice is an even more a direct concern. God does not only passively dwell in his creation, he also actively takes a stand against injustice, on the side of the weak and fatherless, the poor and the oppressed, the weak and needy. The defense of the poor and the cause of fighting poverty are close to orders or commandments in form, as they are put forth by God in the divine council.

In line with this defense of the poor, Jesus says in Lk. 4: 18-19: "The Spirit of the Lord is upon me, because he has anointed me to preach good news to the poor.He has sent me to proclaim release to the captives and recovering of sight to the blind, to set at liberty those who are oppressed,to proclaim the acceptable year of the Lord." But these good news to the poor that saturate the Bible – how are the rich supposed to receive them? Both working to fight poverty and acknowledging one's own (non-material) poverty are possibly fruitful responses. We now turn to our selected text from the gospel of Luke, to see if we can find any good news for the rich here:

The parable of the rich fool: Luke 12: 13-21

13 Someone in the crowd said to him, "Teacher, tell my brother to divide the
inheritance with me." 14 Jesus replied, "Man, who appointed me a judge or
an arbiter between you?" 15 Then he said to them, "Watch out! Be on your
guard against all kinds of greed; life does not consist in an abundance of
possessions." 16 And he told them this parable: "The ground of a certain
rich man yielded an abundant harvest. 17 He thought to himself, 'What shall
I do? I have no place to store my crops.' 18 "Then he said, 'This is what I'll
do. I will tear down my barns and build bigger ones, and there I will store
my surplus grain. 19 And I'll say to myself, "You have plenty of grain laid
up for many years. Take life easy; eat, drink and be merry." 20 "But God

> said to him, 'You fool! This very night your life will be demanded from you. Then who will get what you have prepared for yourself?' [21] "This is how it will be with whoever stores up things for themselves but is not rich toward God."

When read in a materially wealthy context such as that of Norway, this text challenges our priorities and our focus. The actions of the farmer in this parable are economically sound, from a self-centered point of view. Still, his wealth-saving project fails, because he loses something more important than his material abundance; he loses his life. This parable can, then, be read as an encouragement to be "rich toward God" and to "seek first the kingdom of God [..]" (Mt. 6:33) rather than to plan and live by the dominant profit-maximizing ideology of our time.

With the context of the oil fund in mind, it is not hard to compare Norway to the rich farmer, who saves 'treasures on earth' – 'storing up things for themselves' and for future Norwegians. One might, in the case of Norway, argue that the oil fund also involves caring for others – for future generations. But then again, what is the most basic need that future generations of Norwegians have – money in the bank, or the basic conditions for living that nature constitutes for humanity? A focus on caring for the future of its own citizens might be a legitimate concern for a nation, and for a government, but is it legitimate for the church – which is, in its essence, global and in its scope, universal – to accept that priority is given to the interests of single nations in this manner, even if that nation is one's own?

It seems difficult to read these texts and simultaneously argue that maximizing profits should be more of a priority than caring for creation and caring for neighbors in poor countries and in future generations. So are there any good news for the rich here? Not if one is interested in maintaining the status quo and one's wealth and avoid being reminded of unpleasant truths. But for those who want to live in freedom from greed and self-centredness, in a more sustainable and sharing manner, reading and acting upon these texts can be very good news indeed.

3. ACTING on a Biblical basis in the context of Norway

Now, to the most difficult, but also the most important question we face in this contextual Bible reading process: How do we apply these biblical insights to our context in practice? The starting point must be to raise the level of ethical reflection to a point where people are willing to change their behavior and their society away from greed, overconsumption and profit-focus towards more sustainability and sharing.

In the introduction, we asked whether Christians are willing to apply these eco-theological principles and priorities to their personal lifestyles, and perhaps even more important, to the way they build and run the societies in which they live. Empirical studies show that active church-goers in Norway are in fact on average more 'eco-friendly' than non-church goers – in terms of being willing to make personal sacrifices and make environmentally friendly lifestyle choices, and in terms of supporting increased political measures towards sustainability (Botvar, 1998, 2012). The eco-involvement of churchgoers is steady over time, while it has decreased between 1993 and 2011 in the population in general. This implies that there is indeed a potential for the growth or re-growth of a Christian a Christian counterculture for the environment and for climate justice in Norway.

Bjørkdahl (2012) points out how the Norwegian government avoids drawing the obvious link between petroleum production and climate efforts. This creates vague political statements, such as that on development and environment, which leaves the petroleum production almost unmentioned, an obvious "elephant in the room" (Bjørkdahl, 2012) The question here is, can Christians see the petroleum elephant?

The challenge of thoroughly addressing climate justice and responding to the climate crisis, especially by relating these issues to Norway's petroleum production, were recently raised in the ecumenical Christian in-depth magazine STREK (*see* STREK 1/2012). The title on the first page was "A state church in a petro-state. The eco-friend with the two lords", accompanied by the photo of a priest's face covered in dark brown oil. This edition raises questions such as: Can Norway be an eco-friendly country while profiting on fossil fuels while the emissions from those fuels have caused the climate crisis? Will the church dare to be true to its 'green heart', and speak up against more oil production? Is the church held back by its economic ties to the state, whose income is to a large degree from petroleum[10]? Don't we have to choose between serving God or Mammon?

The biggest Christian daily in Norway, Vårt Land (*see* Vårt Land, April 2012), also raised similar questions in the spring of 2012, and reminded the Church of Norway about its climate ambitions a few years before – the 'climate revival' that may seem to have come and gone.

If it is accepted, then, that Biblical texts do raise a radical challenge in the context of the current ecological crisis, climate justice perspectives and Norway's petroleum wealth – then this does not point directly to a recipe for solving the issues at hand. One possible response would be to work for the slowing down of oil production and increased efforts for renewable energy, which has been proposed by several bishops in the Church of Norway, most recently by bishop Erling Pettersen in Stavanger, Norway's 'oil capital' (Lewis & Demarest, 2012). Another response would be to invest more of the oil fund in green development, that is, giving nature and others higher priority than profits only. This path of action has been suggested by the Christian ecumenical movement Korsvei ('Crossroads'). Norwegian Church Aid, on their part, are asking for 1% of the oil fund investments to be placed in Africa; again, looking for ways to exercise good stewardship.

These suggestions have not been fully adopted by the government or society at large as of yet, but can be seen as glimpses of the Church exercising its prophetic voice. Churches and Christian movements are teaming up with other environmental organizations. This May, representatives from the Church spoke against Statoil's involvement in tar sand production in Canada; a production that both severely damages the environment and takes the livelihood from natives, a marginalized group in Canada. The Church's own fund owns a small share of the stocks in Statoil, but have now decided to sell their share, since at the latest general assembly of Statoil the suggestion to end the tar sand project was rejected (Eikeland, 2012).

When Church leaders and Christian movements make statements concerning the environment in this manner, especially specific statements about the pace of petroleum production, they are often criticized for becoming "too political" and told they should rather just attend to "spiritual" matters. While this reflects the modern world's compartmentalization of life, which can be questioned on its own merit, it is not only a Norwegian phenomenon. Based in Constantinople, His All Holiness the Ecumenical Patriarch Bartholomew has addressed environmental issues in a frequent and faithful manner over the years, and is often met with suspicion and criticism by Orthodox laypeople

and clergy, saying that he should address more "spiritual" issues (Schuff, 2011, 98). The Patriarch comments: "Unfortunately, it has been a consolidate opinion, even among the Orthodox, that the Church should deal with other issues supposed to be more 'spiritual'; as though the protection of God's creation from destruction, which is resulted by human greed, is not a spiritual issue!"[11] His reminders of how greed and destruction of creation must be considered sin, and how asceticism and self-sacrifice following the example of Jesus Christ can contribute significantly to sustainability, are important themes that we unfortunately cannot explore in depth within the scope of this present study. For now, let us just underline that we share his emphasis on our response to the ecological crises in the world as a matter that is spiritual at its core.

Naturally, the principles for action suggested here do not only concern large macro-level structures and political decisions; it also concerns personal and interpersonal choice. How to handle the fossil fuel-based wealth in the case of Norway is only one of many possible concretizations of a more general principle, which is touched upon every time we choose a less eco-friendly alternative because of money concerns – to save or earn more money – when we can afford the eco-alternative. On the personal level, then, appropriate actions might be using public transportation rather than driving a fossil-fuel-run car, eating less meat and more local foods, isolating homes and other buildings to save energy, and reducing consumption and energy use in general.

The global scope of the climate crisis, however, also requires a response at a whole different scale than just 'starting with oneself' – so a proper response to the climate justice challenge must therefore not 'end with oneself' as well, with merely individual actions (Hungnes, 2008). It is so limited what an individual can do that it might end up with a feeling of hopelessness. Again, we want to emphasize the importance of a communal approach. When people come together in communities, at smaller and larger scales, and change behaviors and pressure politicians, a much more viable dynamic is set into motion. And when such communities open their lives to the guidance *and* the transformative power of the Triune God, then change is possible; climate justice is possible; and ultimately, another world is possible.

Summary and concluding remarks

We have in this contribution argued that a contextual and alert reading of Bible texts can seriously challenge Christians in an oil-rich country such as Norway. Following a contextual Bible reading approach, also inspired by patristic explanations of the tropological way of reading, and the methods of integrative theology, the goal was to link context, biblically based theological considerations and possible real-life applications.

Looking at the context, we took as a starting point that humanly induced climate change is taking place, and that fossil fuel emissions are the main contributor to these processes that threaten the future life of the planet. The concept of climate justice, which unites concerns the protection of creation with the fight against poverty and injustice, has emerged within the climate field over the last decade, and many Church leaders and Christian movements are among its advocates. In the case of Norway, climate-conscious policies have been formulated to make Norway 'green', yet they have not addressed the fairly obvious paradox between these good intentions and the continued large-scale production and export of fossil fuels. Since Norway is among the leading oil- and gas-producing countries in the world, basing approximately one fourth of its national budget on revenues from the petroleum sector, the link between fossil fuels and climate change is Norway's own 'inconvenient truth' (Bjørkdahl, 2012).

Turning to the Bible texts, Psalm 24: 1-2, Psalm 82: 2-4, and Lk. 12: 13-21, we let them judge our context and ourselves to see the situation more clearly according to faith. The texts clearly state that the earth's is the Lord's, that God fights with the poor for justice, and that those who save up treasures on earth as opposed to in heaven should reexamine her or his priorities. In the context of climate justice and Norway's fossil-fuel based wealth, these texts stimulate reflection concerning all the key elements; creation and threats of its destruction and deterioration, common goods and rethinking property rights and how we use natural resources, profits and greed versus concern for the poor and oppressed.

Looking at possible responses to these challenges from the Bible in context, both political and personal responses were mentioned. We will not here finalize a new petroleum policy for Norway or give any recipe to how the climate justice challenge should be tackled on personal, communal and societal levels. At the same time, we underline that these challenges call for a response – on all of the levels mentioned above.

The climate change and justice issue is an economical and technological challenge – because we need to base our economy, welfare state and energy use on renewable energy rather than fossil fuels. It is a cultural challenge – because we need to change our lifestyle from consumption to sustainability. And as a context for reading these Bible texts, climate justice also adds up to a *spiritual and moral challenge*: To have God as our Lord, not Mammon – and live by the priorities of Christ. Loving God, others and nature, also by saying no to possible profits and rejecting greed as a motivational force; to not gather riches for one self, but to be rich toward God (Lk. 12:21).

This shows that a holistic theological approach to today's global climate and justice challenges can be developed from biblical and patristic sources, and that this can serve as a basis for ethically grounded reflections and discussions on what actions should be undertaken. Those who believe that the Bible and the theology of the Church community have something to say to us today, will therefore do well in exposing themselves to its challenges also concerning climate justice. Climate justice is a spiritual and moral challenge that needs to be contextualized and responded to. And no matter what actions and changes are to be made, they should be actions that properly answer to the question of what our lives and societies would look like if maximizing sustainability, caring and sharing is more important to us than maximizing profits and guarding our wealth.

REFERENCES

1 The specifically South African tradition of contextual theology and contextual Bible reading has developed in the societal context of apartheid (and with it severe structural oppression, interracial conflict and dire poverty), and was inspired by Latin American Liberation Theology, African American Black Theology, Feminist Theology, Tanzanian Ujaama Theology, South African Theology and other sectors within Biblical scholarship that "openly acknowledged and advocated interpreting the Bible from and for a particular context" (West, 2006, 133).

2 This also seems to be the common dynamics of the process at the Ujaama Centre at the University of Kwazulu-Natal, a centre of which Gerald West is the director. The Ujaama Centre offers both practical and academic resources on contextual Bible reading, resources that go together, as they explain on their webpage (http://ujamaa.ukzn.ac.za/resources.aspx): "for reflection on practice are part of a single process".

3 While 'poor and oppressed non-scholars' have not been directly consulted in this current project, the authors have both been impacted by meeting such people in the past, e.g., youth and church leaders from African, Pacific and South American countries

already affected by climate change whom we have met at different climate-related conferences and gatherings. We feel that future studies would be strengthened by a more systematic voicing of such concerns 'from beneath', not to 'access their consciousness' (*cf.* West), but to present theological/academical work that seeks to be equitable (in North-South-terms) also in method.

4 The terms 'the South' and 'the North' are here not used in strictly geographical terms, but about the so-called global South – the poorer and less industrialized majority of the countries of the world, as opposed to the global North – the wealthier and industrially/post-industrially developed countries. This is necessarily an oversimplification of the rapidly changing positions of several countries, but can nevertheless be useful for the purposes of this paper.

5 This and other quotes from originally Norwegian sources are translated into English by the authors.

6 Related terms are eco-justice and environmental justice, which are broader in scope, but share the same essence in combining a concern for environmental protection with a concern for social justice.

7 A heated debate here concerns what the role of newly industrialized/rapidly developing countries such as China, India and Brazil should be – since they do not quite 'fit' in the North/South or rich/poor cateogies, as they have less of historical responsibility, but a significant current share of emissions.

8 In Greek: adj. δίκαιος; n. δικαιοσύνη, ἡ. In Hebrew: קדצ.

9 Lev. 19:36.

10 In this current year, 2012, the Church of Norway will cease to be a state church and Christianity will cease to be the official state religion. The economic ties between church and state, however, will continue in a similar way as today (STREK 2012).

11 Quote from a speech given at the Academy of Athens on February 3rd, 2010. Published in Greek in the Journal Ekklesia (Church of Greece), April 2010. This translation into English is from Schuff (2011, 98).

BIBLIOGRAPHY

1. Bible references are taken from the Revised Standard Version (retrieved from http://quod.lib.umich.edu/r/rsv)
2. AACC (All Africa Conference of Churches). (2011): *Report of the Pan-African Interfaith Consultation on Climate Justice and Sustainable Peace in Africa*. Nairobi, Kenya: AACC.
3. Bjørkdahl Kristian. (2012) Kan grønnsakssuppe redde verden? [*Can the vegetable soup save the world?*] In: *PROSA* 02/2012, pp. 19-25.
4. Botvar Pål Kjetil. (1998) *Gud og grønne skoger. En undersøkelse av sammenhenger mellom religiøsitet og miljøvernengasjement* [*God and green forests. The study of the relationship between religion and environmental commitment*]. KIFO. Trondheim: Tapir.
5. Botvar Pål Kjetil. (2012) *Kirkefolkets forhold til miljøutfordringene.En analyse av tre spørreundersøkelser fra 1993 til 2011* [*Church People's relation to environmental challenges. Analysis of three surveys from 1993 to 2011*]. KIFO. Available online: http://strekmag.no/uploads/strekartikler/012012/files/kirkefolket_og_miljoutfordringene.pdf
6. Burkett Maxine. (2008) Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism. In: *Buffalo Law Review*, Vol. 56, Issue 1, pp. 169-244.

7. St. John Cassian (4th century): *Conferences 14. First Conference of Abbot Nesteros. On Spiritual Knowledge.*
8. St. John Chrysostom (4th century a). *Homily on 1 Corinthians 4, 1-5.*
9. St. John Chrysostom (4th century b). *Antiochenum 49.43.15.*
10. Clifford Paula (2008) *'All creation groaning': A theological approach to climate change and development.* Christian Aid. Available: http://www.christianaid.org.uk/images/F1429PDF.pdf
11. St. Dorotheus of Gaza (6th century). On Renunciation. In: Dorothée de Gaza. (1963) *Oeuvres spirituelles* (Sources chrétiennes 92). Paris: Éditions du Cerf.
12. Finnseth Asle. (2012) Men bremsene må du aldri røre. Editorial in: *STREK* 01/2012.
13. Economic Justice Network of FOCCISA (Fellowship of Christian Councils in Southern Africa). (2011) *Theology, climate change and justice.* Cape Town, South Africa: FOCCISA.
14. Eikeland Martin. (2012) [online news article] *Kirkefondselger Statoil-aksjer for 15 millioner etter oljesand-ja* [*Church Fund sells Statoil shares for 15 million after the oil sands*] [cited 15.05.2012]. Available: http://www.vl.no/kristenliv/kirkefond-selger-statoil-aksjer-for-15-millioner-etter-oljesand-ja
15. Hungnes Tale. (2008) Gå i fred og tjen Herren med hellig uro [*Go in peace and serve the Lord with holy unrest*]. In: *Av jord er du kommet... Teologiske refleksjoner om skaperverket, klimaendringer og fattigdom* [*From Ashes to ashes... Theological reflection on creation, climate change and poverty*]. Understanding the Issue 1/2008. Oslo: Norwegian Church Aid.
16. IPCC (2012) [online] *Reports and statements from the Intergovernmental Panel on Climate Change* [cited 15.05.2012]. Available at: http://www.ipcc.ch/
17. Lewis Gordon R. & Demarest Bruce A. (1996) *Integrative Theology.* Grand Rapids, Michigan: Zondervan Publishing House.
18. Lewis Hilde Øvrebæk. (2012) [online news article] *Biskopen ut mot oljefylket* [*Bishop out in the oil county*] [cited 15.05.2012]. Available: http://www.aftenbladet.no/energi/Biskopen-ut-mot-oljefylket-2916097.html#.T7MOjsUWLtF
19. Norwegian Ministry of Petroleum and Energy. (2012) *Facts 2012. The Norwegian petroleum sector* [cited 08.05.2012]. Available: http://npd.no/en/Publications/Facts/Facts-2012
20. Schuff, Rev. F. Christóforos. (2011) *"Let all creation rejoice..." Orthodoxy and Creation: Between Liturgical Expression and Contemporary Reality.* Master thesis, Department of Religion, Philosophy and History, Faculty of Humanities and Education, University of Agder.
21. STREK. (2012) *Kirke i oljestaten. Miljøvennen med de to herrer* [*Church in the oil state*], 01/2012. Oslo: Strek Media. Some content also available at: http://www.strekmag.no/
22. Time for Climate Justice. (2012) *Issues and policies: Faith* [online] [cited 09.05.2012]. Available: http://climatejusticeonline.org/issues-policies/faith
23. Ujaama Centre. (2012) *Resources* [online] [cited 09.05.2012] Available: http://ujamaa.ukzn.ac.za/resources.aspx
24. Vårt Land. (2012) *See* several articles on the Church and the climate, available at: http://www.vl.no/ in May 2012.
25. West Gerald. (2006) Contextual Bible reading: a South African case study. In: *Analecta Bruxellensia 11,* pp. 131-148.

Klimata taisnīgums kā garīgs izaicinājums ar naftu bagātā valstī: Norvēģijas gadījums

Kopsavilkums

Rakstā, kas veidots kā kontekstuāls Bībeles lasījums, ir aplūkots klimata taisnīgums un fosilā kurināmā ražošana, uzdodot jautājumu: kādi ir ekoteoloģijas izaicinājumi attiecībā uz klimata taisnīgumu Norvēģijas kontekstā, valstī, kas ir uzkrājusi savu bagātību lielākoties no naftas ražošanas? Balstoties Dienvidāfrikas Bībeles kontekstuālās lasīšanas metodēs, rakstā tiek pielietots trīs soļu analīzes metode: 1) '*Ieraudzīšana*' ietver rūpīgu sociālo analīzi izvēlētajam kontekstam konkrētā laikā posmā; 2) '*Spriešana*' ietver Bībeles tekstu lasīšanu un konteksta izvērtēšanu Bībeles tekstu perspektīvā; 3) '*Rīcība*' nozīmē centienus identificēt un uzsākt atbilstošu rīcību, lai uzlabotu situāciju, balstoties uz pirmajos divos soļos *ieraudzīto* un *nospriesto.*

Pirmajā solī tiek parādīts klimata izmaiņu un klimata taisnīguma globālais konteksts, apvienojot sevī klimata un taisnīguma (objektivitātes) jautājumus. Tam seko Norvēģijas pieredzes apskats. Šajā valstī, pateicoties naftas ieguvei un pārstrādei, ir uzkrāta ievērojama bagātība, tajā pašā laikā šī valsts ievēro videi draudzīgu politiku. Runājot par Bībeli, uzmanība pievērsta diviem būtiski nozīmīgiem tekstiem no Vecās Derības (Ps. 24: 1-2 un Ps. 82: 2-4), kā arī vienai vietai Jaunajā Derībā (Lk. 12: 13-21). Šie teksti klimata taisnīguma un Norvēģijas naftas bagātības kontekstā mudina uz rīcību – lai gan pagaidām nav skaidrs, uz kādu. Tomēr Norvēģijas kristiešu vidē izskan vairāki priekšlikumi. Skaidrs ir, ka jāpaceļ jautājums par ētisko refleksiju, ir jāparāda prioritātes un līdz ar to atbilstoši ir jāpārskata rīcība, dzīves stils un sabiedrības morālētiskie nosacījumi. Veicot Bībeles kontekstuālās lasīšanas uzdevumus, var teikt, ka ne vienmēr vispirms ir jāatbilst uz jautājumu *kā*, bet gan, *ka* klimata taisnīgums *vispār ir jārisina*, balstoties Bībeles imperatīvos un ētiskajā refleksijā. Klimata taisnīgums ir garīgs un morāls izaicinājums, ko nepieciešams kontekstualizēt un uz ko nepieciešams sniegt atbildi.

Atslēgas vārdi: klimata taisnīgums, kontekstuālā ekoteoloģija, Norvēģija, nafta

Mag. theol., Reverend Father
Christofóros Schuff

Orthodox priest and teacher,
Ansgar College and Theological Seminary, Norway

Address: Fredrik Fransons vei 4, Kristiansand, N-4635, Norway

Phone: (+47) 40 02 16 47; (+47) 98 81 91 11

E-mail: schuff@ansgarskolen.no

Mag. phil., assist. prof.
Hildegunn Marie Tønnessen Schuff

Ansgar College and Theological Seminary, Norway

Address: Fredrik Fransons vei 4, Kristiansand, N-4635, Norway

Phone: (+47) 40 02 16 47; (+47) 98 81 91 11

E-mail: schuff@ansgarskolen.no

Climate Change and Anthropological Change: Social Teaching of the Church on Ecology Issues

Klimata izmaiņas un antropoloģiskās izmaiņas: Baznīcas sociālā mācība par ekoloģijas jautājumiem

Dace Dolace, Mag. theol. (Latvia)

The article is focusing on climate change as an important element of ecological crisis and outlines the integrative (scientific, social, ecclesial) approach to the climate change problems and strategies of normalizing ecological situation. The aim of the article is to point out the significance of the factor of social consciousness (or anthropological dimension) in the complex developing of sustainable and ecologically balanced society. In the context of the international and local climate change policy the position and role of the social teaching of traditional Church (Orthodox and Catholic) have been viewed. The article traces the Orthodox theological concept of interconnection between ecological crisis and anthropological processes, proponing a human person (anthropos) as a central symbol of climate change.

Keywords: climate change, anthropogenic factor, Catholic social teaching; ecological concept of the Orthodox Church, experiential ethics, civic society

1. Climate change as an integral part of ecological crisis – description of the situation

Modern society is suffering a multi-faceted crisis generated by the contemporary civilization. Ecological problems form an integral part of the crisis – the ecological balance has been violated and society is facing the emergence of destructive processes in nature, including the failure of its natural reproductive power. The Earth climate has changed. The global average surface temperature has increased over the last century, and further climate change would be beyond the adaptive capacity of many societies and species.

What is climate change?

Scientific approach

Climate is a statistical description of weather conditions and their variations, including both averages and extremes. Climate change is a change in the average pattern of weather over a long period of time.[1] Greenhouse gases play an important role in determining climate and causing climate change.

Climate change is one of the nine ecologically affected planetary systems (next to – biodiversity loss, nitrogen and phosphorus cycles, stratospheric ozone depletion, ocean acidification, global freshwater use, land use, atmospheric aerosol loading, chemical pollution).

Coherent scientific research and recent measurements (published in 2009 by J. Rockström and colleagues[2]) have identified and qualified **planetary boundaries that must not be transgressed**; – crossing certain biophysical thresholds could have disastrous consequences for humanity. Table 1 show that three of nine interlinked planetary boundaries have already been overstepped.

Table 1

Planetary boundaries

Earth system process	***Parameters***	***Proposed boundary***	***Current status***	***Pre-industry value***
Climate change	(I) Atmospheric carbon dioxide concentration (parts per mill.by volume)	350	387	280
	(II) Change in radiative forcing (watts per metre squared)	1	1.5	0
Rate of biodiversity loss	Extinction rate (number of species per million species per year)	10	>100	0.1-1
Nitrogen cycle (part of a boundary with the phosphorus cycle)	Amount of N_2 removed from the atmosphere for human use (millions of tonnes per year)	35	121	0
Phosphorus cycle (part of a boundary with the nitrogen cycle)	Quantity of P flowing into the oceans (millions of tonnes per year)	11	8.5-9.5	-1
Stratospheric ozone depletion	Concentration of ozone (Dobson unit)	276	283	290
Ocean acidification	Global mean saturation state of aragonite in surface sea water	2.75	2.90	3.44
Global freshwater use	Consumption of freshwater by humans (km^3) per year	4.000	2.600	415
Change in land use	Percentage of global land cover converted to cropland	15	11.7	Low
Atmospheric aerosol loading	Overall particulate concentration in the atmosphere, on a regional basis	To be determined		
Chemical pollution	For example, amount emitted to, or concentration of persistent organic pollutants, plastics, endocrine disrupters, heavy metals and nuclear waste in, the global environment, or the effects on ecosystem and functioning of Earth system thereof	To be determined		
Boundaries for processes colored in grey **have been crossed.**				

Data sources: Rockström J., *et al.* (*see* reference[3])

Facts on the evident nature of climate change show: during the last century the average air temperature has increased by 0.7±0.2ºC around the world. And it continues to increase. Scientists forecast that by 2100 it could increase by 1.4–5.8°C, but in Europe – by 2–5.5ºC.

Anthropogenic causes of climate change

As one of the main causes of climate change, a dramatic increase in GHG (greenhouse gases) emissions over the last century has been identified. In nature, the so called *natural* greenhouse gases (carbon dioxide or CO_2, methane or CH_4, nitrous oxide or N_2O) can be found, but there are also such **greenhouse gases** (in addition to the above mentioned – sulphur hexafluoride or SF_6, hydrofluorocarbons or HFCs and perfluorocarbons or PFCs) that are produced as a **result of human economic activities (anthropogenic)** in the transport sector, industrial manufacturing, intensive agriculture, waste management, as well as by burning anthracite and oil products for energy production. Studies on climate change have proved that **anthropogenic GHG emissions are the ones that increase the climate change caused by earth warming the most**.

Carbon dioxide is the most important anthropogenic greenhouse gas. Statistical data show that during the period 1970-2004 emissions of CO_2 have increased by approximately 80%[4] due to intensive use of fossil fuel – oil, anthracite and natural gas, and rapid deforestation.

This increase of greenhouse gas concentration occurred since the beginning of the Industrial Revolution, when the global human population began growing rapidly.

Impacts of climate change on society and environment

Along with the increase in temperature glaciers will melt faster, the level of water in world oceans will rise more rapidly, also the number and scale of extreme and uncharacteristic natural phenomena (e.g., storms, floods, spells of great heat or coldness, long drought, etc.) will increase, thus having significant deteriorating effects on nature, the man-made environment, national economy, human health and safety. Moreover, these are only the direct effects of climate change which in their turn slow down (or promote) the development of national economy and welfare. It should be noted that also the effects of climate change on agriculture, fishing, energy sector, biological diversity (eco-systems), soil degradation, profusion or scarcity of water, human health, and consumption models should be discussed.

Scientists of the Baltic Sea Region suggest that the most profound direct effects of climate change on this region are the following: sea level rise which in its turn increases the risk of floods; warmer and shorter winters affected by the increase in global average temperature; more frequent and heavier storms with increased wind velocity, thus incurring losses in populated areas, as well as increasing the risk of sea floods and coastal erosion; changes in the distribution of rainfall, including increase of strong rainstorms and the total annual rainfall, decrease of rainfall in summers, but – increase in winters, changes in the water supply, as well as river, lake floods and general increase of the water level in rivers. In its turn, severe drought and strong winds significantly increase the forests' reaction to fire and the possibility of forest fires. Thus, the artificially restored forest plantations suffer from extreme natural conditions.

According to the data presented in the National Environmental policy[5] the amount of economic losses in Latvia resulting from climate change is distinctively reflected by the compensations for losses caused by agro-climatic conditions: in 2004 – LVL 221 908, but in 2005 – LVL 440 652 (one third of which were compensations for livestock fallen due to midge bites, but two thirds – for covering material damages caused by floods). In January 2005, the storm which hit not only Latvia, but the whole Northern Europe incurred heavy damages – in Latvia, the estimated total damages amounted to approximately EUR 192 million (the European Union Solidarity Fund allocated EUR 9.487 million).

However, apart from the negative effects of climate change, there are also positive effects to be certainly mentioned. For example, in some places, the agricultural sector will benefit due to longer growing seasons, but elsewhere farming will be more risky because of the scarcity of water and severe (and difficult to predict) weather conditions. Some benefits are possible also in the energy sector due to such direct effects of climate change as the increase in air temperature, growth in the average water flow caused by the increase in rainfall, etc. It would contribute to reduction in consumption of energy resources for heating (which could be even more promoted by energy efficiency measures), as well as more intensive power generation in hydroelectric plants. The positive effects are related also to effects of temperature changes on the biosphere: increase in temperature will reduce possibility of frost and significantly prolong the growing season, but due to a milder climate in the winter months, the human mortality caused by cold will decrease in the temperate zone.

Interdisciplinary approach to the climate change research and management

Human alteration of Earth is substantial and growing. Scientific approach to climate change advances **a concept of human domination of Earth's ecosystems**.[6] Therefore P. Vitousek *et. al.* proposes long-range and perspective approach to the ecological research – analysis of ecological processes incorporating the so called 'human factor':

"The challenge of understanding a human-dominated planet further requires that the human dimensions of global change – the social, economic, cultural, and other drivers of human actions – be included within our analyses."[7]

This approach will have twofold effect:

1) embedding natural sciences (*int.al.* the science of climate) in the space of interdisciplinary research, liberating the interpretation of ecological phenomena from unilateral discourse of natural sciences;

2) recognition that decisions on how to **respond to climate change will have to be made by the society as a whole.** The ecological crisis management "needs to consider the findings of climate change together with considerations that go beyond the science and must include, amongst others, ethics and equity, economics, culture (*int.al.* religion), risk management and politics."[8]

Multi-faceted nature of climate change is characterized by theologian and environmental scientist D. Hallman: on the one hand, "climate change is an illustration of the complex relationship between science and economics"; on the other hand, "climate change is a methaphor of the fractured relationship between human societies and God's creation."[9]

2. International and local climate change policy

Two essential components (strategies) of the climate change policy has been marked in arena of global climate change policy:

1) **mitigation** of climate change,

2) **adaptation** to unavoidable climate change.

The First World Climate Conference was held in February 1979 in Geneva and identified climate change as a topical and global issue, and invited governments of all countries to start implementing practical measures to improve the situation.

In 1988, the UN General Assembly passed its first Resolution 43/53 on climate change, and the World Meteorological Organization together with the UN Environment Programme established the **Intergovernmental Panel on Climate Change (IPCC)**, so that it would examine the range of climate change, estimate the effects and develop potential strategies. In 1990, the Panel published its first assessment report on climate change.

In 1992, the Convention on Biological Diversity was signed together with the United Nations Framework Convention on Climate Change (UNFCCC) during the UN **Conference on Environment and Development in Rio de Janeiro**, Brazil, **thus highlighting that a new phase of assessing human values and responsibility has started in the global political life.**[10] The objective of this Convention is stabilization of greenhouse gas concentrations in the atmosphere at such a level that would prevent dangerous anthropogenic interference with the climate system. Moreover, such level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change and to ensure organic food production and enable the economic development to proceed in a sustainable manner. An important requirement stipulated in the Convention is that the parties or Member States have a right to, and should, promote sustainable development.

Currently, the UN Framework Convention on Climate Change has 192 Member States or parties. In order to prevent anthropogenic effect of greenhouse gas emissions on the climate Latvia signed the UN Framework Convention on Climate Change in 1992, and the Latvian Parliament (the Saeima) ratified it on 23 February 1995.

On 11 December 1997, in the city of Kyoto, Japan, the Convention was supplemented with **the Kyoto Protocol** (entering into effect on 16 February 2005).[11] Latvia ratified the Kyoto Protocol on 5 July 2002. Currently, 175 countries (36 of which are industrialized countries or economies in transition) have ratified the Kyoto Protocol. The Kyoto Protocol stipulates that from 2008 to 2012 the industrialized countries shall individually or jointly ensure that their aggregate anthropogenic (deriving from human activities) emissions of greenhouse gases (further – GHG) do not exceed their assigned amounts calculated pursuant to their quantified emission limitation and reduction commitments referred to in the Annex B. According to the EU point of view, Latvia has to reduce the total GHG emissions by 8% in comparison to 1990.[12]

The **UN Climate Change Conference held in Nairobi in 2006** finalized a five-year Work Programme on Impacts, Vulnerability and Adaptation to Climate Change. The above mentioned programme in order to mitigate climate change a greater focus puts on the sectors of economy causing the highest GHG emissions: energy (including transport), industry, solvent and other product use, land use (including agriculture and forestry) and waste management. Promotion of development and use of **low carbon technologies** plays an essential role.

European Union climate change policy

On 17 December 2008 the European Parliament adopted the climate and energy package defining EU climate change and energy policies up to 2020. The adopted legislation includes a directive on improving the functioning of the European Union's (EU) emissions trading scheme, decision on commitments of Member States to limit emissions of greenhouse gases not covered by the emissions trading scheme (hereinafter – the ETS) (including sectors of transport, agriculture, waste management), directive on the geological storage of carbon dioxide, as well as a directive on promotion of the use of renewable energy sources.

The main objective of the directive on promotion of the use of renewable energy sources is to ensure that by 2020 the percentage of **renewable energy sources**[13] in the EU reaches 20% of the gross final energy consumption. The Member States will have to draft action plans for use of renewable energy sources in accordance with specific requirements. In 2005, the share of renewable energy sources consumed in Latvia was 32,6%, but in 2020 it should reach 40%.

It is planned by 2020 to reduce greenhouse gas emissions by 10% in the non-ETS sectors compared to the level of 2005. For Latvia the increase in greenhouse gas emissions cannot exceed 17% by 2020 compared to 2005, which will be a challenge, since emissions from the non-ETS sectors account for more than 2/3 of overall emissions of the country, and the largest emission growth is forecasted in the transport sector.

On 29 June 2007 the European Commission published **the first EU-level political declaration on the necessity to adapt to climate change – the EU Green Paper on "Adapting to climate change in Europe – options for EU action".** It highlights that adaptation policies and instruments have to be selected from the existing ones, particularly by developing crisis and risk management, promoting adaptation measures at all levels (national, regional and local), integrating policies and their implementation instruments into main sectors of national economy. The European Commission has published the "**White Paper: Adapting to Climate Change**" on 2 April 2009. It envisages that development and introduction of the adaptation policy shall be carried out in two phases: during the first phase (2009-2012) a comprehensive EU adaptation strategy is to be developed, but during the second phase it will be implemented (after 2012).

Situation in Latvia: defining the problems

The GHG emission projections show that by implementing the current policy on mitigation of climate change Latvia will fulfill its emission reduction commitments defined in the Kyoto Protocol for 2008-2012.

In Latvia, regarding the development of national economy, human welfare and stability of eco-systems, on 5 August 2008 the Cabinet of Ministers adopted an informative report "On Adapting to Climate Change" being prepared on the basis of the EU Green Paper on Adapting to Climate Change and White Paper on Adapting to Climate Change), as well as by taking into account studies by foreign and local scientists and other facts about the increasingly important effects caused by climate change.

Ministry of Environment of Latvia has brought forward the main objective of climate change policy[14]**:**

to provide contribution of Latvia to prevention of global climate change by **ensuring balance between environmental and economic interests.**

Planned measures for achievement of the policy objective:

1. To coordinate measures in order to ensure harmonized **reduction of GHG emissions** and increase of CO_2 capture;
2. To draft and introduce a **legislative framework** for operation of the national GHG emission scheme,
3. **To encourage change of the consumption model according to the sustainable development approach;**
4. To facilitate renovation of **multi-apartment buildings** according to the energy audit results;
5. To encourage development and introduction of efficient and environmentally friendly **technologies** to increase energy efficiency and the **use of renewable energy sources;**
6. To improve **the tax system** with a view to reduce the use of fossil fuels and increase use of renewable energy sources;
7. To support efficient and **rational use of energy**;
8. To promote **scientific studies** on mitigation of climate change and adaptation to it;
9. To ensure communication for informing all groups of society about climate change and for **increasing public participation**, to **encourage initiative at local level;**
10. To provide the **public with high-quality information on the necessity to reduce the effects of harmful climate change** and about implementation of planned national measures [emphasis mine – *D.D.*].

Specified tasks explicitly points at integrative character of the climate change management in the country; but there is a lack of adequate approach. **In order to achieve the aim of balancing environmental and economic development anthropological, societal, cultural factors and change strategies (proponed by science!) should not be dismissed.**

In order to come to essential solutions of the climate change crisis, which have been defined as anthropogenic crisis, it is not sufficiently "to provide the public with high-quality information on the necessity to reduce the effects of harmful climate change" and "to inform all groups of society for increasing public participation". These activities are incapable **to reach the anthropological core of the "ecological and economical balance" problem.**

Strategic document of Latvian Environmental policy[15] analyzing the results of the period since 2006 identifies following key problems regarding climate change policy:

1. Lack of long-term, regular scientific studies on the potential impact of climate change on the environment of Latvia;
2. Economic and social adaptation measures and their implementation programme have not been developed;
3. The rate of using technologies that reduce greenhouse gas emissions (including technologies using renewable energy sources and increasing energy efficiency) is low;
4. Lack of a climate policy aimed at households;

5. **The public and companies do not have a strong desire to change their consumption model** [emphasis mine – *D.D.*].

Problems of economic and social adaptation to the climate change can never be solved merely by economical and political instruments. Strategically essential question and methodological problem remains in agenda:

if the ecological crisis is the result of formation of the consumer society in the epoch of industrialization, how could be changed the consumption models of society? (E.g., environmental studies of social demands prognoses a further intensive growth of the personal transport use and its influence on climate change.[16])

The aim of this article is to point out the significance of the factor of social consciousness (or anthropological dimension) in the complex developing of sustainable and ecologically balanced society.

In this context the social concept of the Church obtains peculiar topicality.

3. Catholic social teaching and environmental ethics

Catholic social teaching (CST) strategically approved by the Vatican Council II (1960) has traditionally focused on economic and social development, encompassing issues related to human work, the economy, peace, human rights, the family and national and international political development. At the time of Vatican II 'green movements' were sporadic. Now, in the early years of the 21st century, ecological concerns are at the forefront.

John Paul's II World Day of Peace message, 'Peace with God the Creator, Peace with all of Creation (1990),[17] was the first comprehensive Papal document dedicated solely to ecology and has been widely influential. John Paul II states that "the proper ecological balance will not be found without directly addressing the structural forms of poverty that exist throughout the world." He stresses "**the urgent need for a new solidarity**."

In a 2003 ecology statement, the Canadian Bishops amplify this papal concern by stating that "ecological harmony cannot exist in a world of unjust social structures; nor can the extreme social inequalities of our current world order result in ecological sustainability."[18] In other words, economy and ecology (and culture) must be addressed in a seamless, holistic fashion in a manner that is ultimately rooted in the incarnate Jesus Christ.

A rich tradition of Episcopal teaching on ecology and human development has developed over the past three decades. In response to pressing socioecological issues, individual bishops or national conferences of bishops have issued pastoral letters on ecology and development.[19]

Current principles of ecological teaching on global climate change

Catholic Church qualifies the ecological crisis as a "social and personal problem", related to the sphere of **ethics**.[20]

Respect for the integrity of creation is one of the basic theological postulates regarding to ecology. Catholic Catechism posits (Section 2415):

"The seventh commandment [thou shalt not steal] enjoins respect for the **integrity of creation**. Animals, like plants and inanimate beings, are by nature destined for

the **common good** of past, present, and future humanity. Use of the mineral, vegetable, and animal resources of the universe cannot be divorced from **respect for moral imperatives**. **Man's dominion** over inanimate and other living beings granted by the Creator is not absolute; it is limited by **concern for the quality of life of his neighbor,** including generations to come; it requires a religious respect for the integrity of creation [emphasis mine – *D.D.*].

In this text from Catechism appear the main categories on which is based the Catholic social teaching on ecology.

Summarizing – the following environmental principles constitute contemporary Catholic social teaching on the environment and climate change particularly:

1. **Scientific Knowledge and the Virtue of Prudence.** Accepting the consensus findings of scientists on 'global warming' Church realizes that interpretation of scientific data and conclusions in public discussion can be difficult and contentious matters. Over the past few decades, the evidence of global climate change and the emerging scientific consensus about the human impact on this process have led many governments to reach the conclusion that they need to invest time, money, and political will to address the problem through collective international action. The virtue of prudence is paramount in addressing climate change. This virtue is not only a necessary one for individuals in leading morally good lives, but is also vital to the moral health of the larger community. "**Prudence is intelligence applied to human actions. It allows discerning what constitutes the common good in a given situation.** Prudence requires a deliberate and reflective process that aids in the shaping of the community's conscience."[21]
2. **Human life and dignity as a forefront of any consideration of environmental questions.** Pope John Paul II has linked protecting the environment to "authentic human ecology," which can overcome "structures of sin" and which promotes both human dignity and respect for creation.[22]
3. **The obligations to future generations as a necessary condition of environmental decision-making.** As Pope John Paul II has said, "We cannot interfere in one area of the ecosystem without paying due attention both to the consequences of such interference in other areas and to the well being of future generations."[23] Responses to global climate change should reflect human interdependence and common responsibility for the future of the planet. Individual nations must measure their own self-interest against the greater common good and contribute equitably to global solutions.
4. **The universal common good**. The right to private property and the mandate to use property for the common good must both be respected in environmental policies.
5. **Stewardship as an appropriate model for human care for the environment.** Stewardship – defined in this case as the ability to exercise moral responsibility to care for the environment – requires freedom to act. Significant aspects of this stewardship include the right to private initiative, the ownership of property,[24] and the exercise of responsible freedom in the economic sector. Stewardship requires a careful protection of the environment and calls to use human intelligence "to discover the earth's productive potential and the many different ways in which human needs can be

satisfied."[25] Technological innovation and entrepreneurship can help make possible options that can lead society to a more environmentally benign energy path. Changes in lifestyle based on traditional moral virtues can ease the way to a sustainable and equitable world economy in which sacrifice will no longer be an unpopular concept.

6. **Spirit of subsidiarity – environmental decision-making made at the appropriate level.**
7. **Caring for the poor and issues of equity.**
8. **Environmental concerns are also moral concerns which require radical rethinking of the consumer culture of our society.**

Catholic Church is characterized by active social response to the challenges of ecological crisis. Catholic social teaching represents mainly the **ethical streamline of crisis management and mitigation.**

4. Anthropological approach to the ecological concept of the Orthodox Church

What regards the Christian ecological strategy and its basic questions on care for creation Traditional Church (Orthodox and Catholic Churches) it is united lying on the substructure of God's Revelation and shared Tradition of the Church.

As evidence serves the common **declaration *On the Environment* signed by Pope John Paul II and Patriarch Bartholomew I of Constantinople in 10 June, 2002**.[26] Declaration reasserts the central position of human beings in the whole of creation, and accordingly – the human responsibility in front of Creator and society.

Peculiar topicality of this declaration is **call for repentance** of human sins against nature. (Stress on repentance – individual and social – is an approach specifically characteristic to the Orthodox spirituality):

"What is required is an act of repentance on our part and a renewed attempt to view ourselves, one another, and the world around us within the perspective of the divine design for creation. The problem is not simply economic and technological; it is moral and spiritual. A solution at the economic and technological level can be found only if we undergo, in the most radical way, an inner change of heart, which can lead to a change in lifestyle and of unsustainable patterns of consumption and production."

Founder of the Orthodox ecological concept in Russia, Vladimir Solovyev, a century ago has proposed the correlation between society and ecology: **environmental changes are dependant of social and anthropological changes**.[27] Nowadays this approach has become extremely substantial; this conceptual line has been kept in the social concept of the Russian Orthodox Church.

Basic ecological principles of the Social Concept of the Orthodox Church[28]

1. Relations between man and nature were broken in pre-historic times because of the fall of man and his alienation from God.

The first human transgression was reflected in nature like in a mirror. The seed of sin, having produced an effect in the human heart, gave rise to "thorns and thistles", as Holy Scripture testifies (Gen. 3:18). The full organic unity that existed between man

and the world around him before the fall (Gen. 2: 19-20) was made impossible. In their now consumer relations with nature, human beings began to be more often guided by egoistic motives. They began to forget that the only Lord of the Universe is God (Ps. 23:1), to Whom belong "the heaven... and the earth also, with all that therein is (Deut. 10:14), while man, as St. John Chrysostom put it, is only a "**housekeeper**"[29] entrusted with the riches of the earth. "Dominion" over nature and "subjection" of the earth (Gen. 1:28), to which man is called, do not mean all-permissiveness in God's design. It only means that man is the bearer of the image of the heavenly Housekeeper and as such should express, according to St. Gregory of Nyssa, his royal dignity not in dominion over the world around him or violence towards it, but in "dressing" and "keeping" the magnificent kingdom of nature for which he is responsible before God.

2. The Orthodox Church appreciates the efforts for overcoming the ecological crisis and **calls people to intensive co-operation** in actions aimed to protect God's creation. At the same time, she notes that these efforts will be more fruitful if the basis on which man's relations with nature are built will be not purely humanistic but also Christian. One of the main principles of the Church's stand on ecological issues is the unity and integrity of the world created by God. **Orthodoxy does not view nature around us as an isolated and self-closed structure.** The plant, animal and human worlds are interconnected. From the Christian point of view, nature is not a repository of resources intended for egoistic and irresponsible consumption, **but a house**[30] in which man is not the master, but the housekeeper, and a temple in which he is the priest serving not nature, but the one Creator. The conception of nature as temple is based on the idea of theocentrism: God Who gives to all "life, and breath, and all things" (Acts 17:25) is the Source of being. Therefore, life itself in its various manifestations is sacred, being a gift of God. Any encroachment on it is a challenge not only to God's creation, but also to the Lord Himself.

3. The ecological problems are essentially anthropological as they are generated by man, not nature. Therefore, answers to many questions raised by the environmental crisis are to be found in the human heart, not in the spheres of economy, biology, technology or politics. Nature is transformed or dies not by itself, but under the impact of man. His spiritual condition plays the decisive role here, for it affects the environment both with and without such an impact. The church history knows of many examples when the love of Christian ascetics for nature, their prayer for the world around them, their compassion for all creatures made a beneficial impact on living things.

4. Relationships between anthropology and ecology are revealed with utter clarity in our days when the world is experiencing two concurrent crises: spiritual and ecological. In contemporary society, man often loses the awareness of life as a gift of God and sometimes the very meaning of life, reducing it sometimes to the physical being alone. With this attitude to life, nature around him is no longer perceived as home and all the more so as temple, becoming only a "habitat". The spiritually degrading personality leads nature to degradation as well, for it is unable to make a transforming impact on the world. The colossal technological resources cannot help humanity blinded by sin, for, being indifferent to the meaning, mystery and wonder of life, they cannot be really beneficial and sometimes become even detrimental. In a spiritually disorientated man, the technological power would beget utopic reliance on the boundless resources of the human mind and the power of progress.

5. It is impossible to overcome the ecological crisis in the situation of a spiritual crisis. This does not at all mean that the Church calls to curtail the preservation activity, but in her hope for a positive change in the man-nature relationships, she relies rather on society's aspiration for spiritual revival. The anthropogenic background of ecological problems shows that we tend to change the world around us in accordance with our own inner world; therefore, the transformation of nature should begin with the transformation of the soul. According to St. Maximus the Confessor, man can turn the earth into paradise only if he carried paradise in himself.

5. Problem of ethical (moral) demands and proclamation in modern society

Regarding the environmental policy of the Traditional Church there should not be ignored following problem which become essential in the process of implementation of the ethical and anthropological strategies.

Church should be very conscious of moral discourse changes in up-to-date social consciousness. **In the context of crisis of classical European ethics, classical proclamation of moral norms and principles (characteristic to the traditional European Christianity for centuries) has become ineffective**. Tracing the decline process of the classical moral consciousness (*int.al.* ecological consciousness) of society, theologians and philosophers[31] have outlined several phases:

1. Rejection of platonic (and later patristic) ontology or *kosmos noetos*. This stage has been basically completed to the end of the 19th c. with the loss of consciousness of sacred unity of humans, nature and God. To this time the noticeable presence of platonizing and patristic metaphysics in European thought was probably restricted to Russian Orthodox theology and religious philosophy.
2. Rejection of the Cartesian epistemological subject – the famous "death of subject" widely discussed at the beginning of 20th century.
3. Rejection of Kantian ethical subject. This "death of ethical subject" is a result of the Second World War and the experience of the nazist and soviet totalitarianism, which was quite correctly interpreted as a total bankruptcy of classical ethics.

Therefore classical propositional formulas of Christian ethics couldn't be practically caught and personified by modern society, even by Christian communities. But, searching for possibilities of regaining public authority Church should not fall in another extreme – loosing the Truth in efforts of improving social, ecological, political, etc. situation.

Describing this problem of moral "efficacity" Orthodox philosopher Christos Yannaras analyzes the specific character of Orthodox ethos which is imbedded into Eucharistic community and Truth. There is a distinction between Truth-based moral position and between "ethics of improvement" peculiar to a large part of Western Christianity. The expectations of direct improvement of outer situation are based on two premises[32] which are taken as self-evident: 1) one such premise is that organized effort, where individuals enlist in struggles against other individuals or structures which maintain social injustice, is capable of bearing fruit and restoring the life of society as a whole to its correct functioning. 2) The other premise is the conviction that correct or adequate functioning of life in society as a whole can be secured by an objective, rationalistic control of the individual's rights and duties.

On the other hand, Truth of the Church is still a teaching with the power to transfigure the world. The problem arises when "objectification of Truth"[33] comes about. The historical and cultural life of the West has been built identifying the truth with a particular function of human logic. "Objective" truth presupposes rationality as the only possible way of interpreting and ordering natural and societal reality. **Truth is no longer something achieved by a personal approach and personal experience, by anthropological transformation in the process of striving for the Truth, but a complete, closed system of concepts.** When Truth becomes "objective," this leads to the "infallibility" of its representatives, of the bureaucratic structures.

The social and environmental ethics of the Church aims neither at an "improvement" in the objective conditions of corporate life, nor at an "improvement" in the character of other individuals. Its aim is "to enable life to operate in the limitless scope personal freedom, **the freedom which can be existentially realized only as an event of communion or 'communal becoming'** " (Yannaras). The Church's communion is an ontological fact, – being is an event of communion; it is divine, Trinitarian communion.

Also in Russian Orthodox theology we can find similar theological position – S. Horujy proposes topicality of '**experiential ethics**' today opposed to any abstract ethics.[34] This type of *ethos* stems from Orthodox patristic and monastic ethical tradition which is based two factors: 1) divine and human love and 2) personal communion. This does not make ethics a doctrine; it is rather like a live instruction or counseling. Contrary to other frequent accusations of ascetic ethics, it is not egoistic or purely individualistic. **The God-man connection, being personal, includes at the same time rich inter-subjective aspects. These inter-subjective or "counciliary" (Rus. 'soborny') aspects shapes appropriate methodology of developing solidarity, associations and communities –** links of life and ethically-based relations which penetrates and heals the canvas of social, political and ecological life.

At the starting point the Ethical Space, i.e., the sphere of validity of ethical judgments, coincides here with the Space of the personal experience of love and *praxis* of *caritas.* This personal ethical space is, of course, much smaller than whole Human Space (space of human and social being), which serves as Ethical Space for classical European ethics. But the experiential Ethical Space is also expanding keeping always its personalistic and cohesive nature.

6. Church's social and ecological approach in the interdisciplinary context

Orthodox vision of anthropological and experientially ethical change of social (and ecological) canvas is in accord both with the position of natural sciences (which have declared the anthropogenic factor as determinant of the negative climate change as well as of the positive changes), and latest approaches to the global crisis by progressive thinkers of social, political and economical sciences.

In searching for revitalization and reintegration of society new – associative, solitaire – social, economical and cultural paradigm is being evolved. It includes:

1. principles **of associative democracy**. The central idea is – "how to get more co-operation, co-ordination and collaboration into our economy, our democracy, our public services, and our lives."[35] Similar ideas have appeared in society in different contexts (*inter alia* in Church context): considering

the potential and implications of increased social cohesion, mutuality; the need to pay more attention to relationship in life; to overcome individualism and social isolationism, etc. The basic question which has been raised is how to develop

- more associational forms of democracy,
- wider decision-making,
- to re-balance the centralization of the state and the dominance of big business.

2. developing the **social entrepreneurship –** kind of entrepreneurship which goal is bringing social merit and development of the moral and social capacity for the people involved instead of financial goal and profit as primary
3. development of the **civic society.** Politics in the nation-state era operates along two structural poles of society: market and government. Europe Union politics operates between three structural components: market, government and civic society. The shift from two-sector to three sector politics represents a radical progression in the development of political life. World-famous economist J. Rifkin calls the civic society 'the forgotten sector' which after a long period of being colonized at the hands of the market and nation state is pushing to re-establish its central role in the scheme of public life.[36] Civic society is composed of all the activities that make up the cultural life of individuals and their communities – the civic society includes religious organizations, the arts, health care, social and **environmental advocacy**.[37]

Today local neighborhoods and communities (human unions – *oikos* where personal experiential ethics of *caritas*, based on Liturgical and Eucharistic ethos of the Church, could be implemented) would be ideal social agents to address the abundance of issues that confront humanity in an interconnected world.

REFERENCES

1 *The Science of Climate Change*. (2010) [online] Canberra: Australian Academy of Science. Available: http://www.science.org.au/reports/climatechange2010.pdf

2 Rockström J., Steffen W., Liverman D. (etc.) (2009) A Safe Operating Space for Humanity. In: *Nature*, Vol. 461/24.

3 Rockström J., *et al*. (2009) [online] Planetary Boundaries: Exploring the safe operating space for humanity. In: *Ecology and Society*, Vol. 14 (2): 32. Available: http://www.ecologyandsociety.org/vol14/iss2/art32; http://www.stockholmresilience.org/download/18.1fe8f33123572b59ab800012568/pb_longversion_170909.pdf

4 Environmental Policy Strategy. (2009) Riga: Ministry of Environment, p. 41.

5 Environmental Policy Strategy. (2009) Riga: Ministry of Environment, p. 40.

6 Vitousek P., Mooney H., Lubchenco J., Melillo J. (1997) Human Domination of Earth's Ecosystems. In: *Science*, Vol. 277, pp. 494-499.

7 Vitousek *et. al*., p. 499

8 *The Science of Climate Change*. (2010) [online] Canberra: Australian Academy of Science. Available: http://www.science.org.au/reports/climatechange2010.pdf

9 Hallman David G. (2000) Climate Change: Ethics, Justice, and Sustainable Community. In: *Christianity and Ecology. Seeking the Well-Being of Earth and Humans/* Eds.: Hessel Dieter T., Ruether Rosemary R. Harvard: Harvard University Center, pp. 451, 456.

10 Rio Declaration on Environment and Development – *See* **Appendix no. 1.**

11 The Kyoto Protocol on Climate Change. [online] Available: http://unfccc.int/kyoto_protocol/items/2830.php/

12 Environmental Policy Strategy. (2009) Riga: Ministry of Environment, p. 42.

13 Renewable energy is energy which comes from natural resources such as sunlight, wind, rain, tides, and geothermal heat, which are renewable (naturally replenished).

14 Environmental Policy Strategy. (2009) Riga: Ministry of Environment.

15 Environmental Policy Strategy. (2009) Riga: Ministry of Environment, pp. 42-43.

16 Garnaut R. (2008) [online] *The Garnaut Climate Change Review*. Cambridge University Press. Available: http://www.garnautreview.org.au/chp23.htm

17 Text of the message *see* in **Appendix no. 2.**

18 You Love All That Exists. Canadian Conference of Catholic Bishops, 2003.

19 *See* Bibliography.

20 Doyle D. M. (1992) Ecology and Vatican II. In: *The Church Emerging from Vatican II: a popular approach to contemporary Catholicism*. Mystic, Conn.: Twenty Third Publications, p. 333.

21 *Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good*. US Conference of Catholic Bishops, June 15, 2001.

22 Pope John Paul II. (1991) *On the Hundredth Anniversary of* '*Rerum Novarum*', No. 38.

23 Pope John Paul II. (1990) *The Ecological Crisis: A Common Responsibility*. Washington, DC: USCC.

24 *Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good*. US Conference of Catholic Bishops, June 15, 2001.

25 Pope John Paul II. (1991) *On the Hundredth Anniversary of 'Rerum Novarum*', No.38.

26 Pope John Paul II & Patriarch Bartholomew I of Constantinople. (2002) *Declaration on the Environment*, June 10, 2002. Available at Catholic Conservation Centre: http://conservation.catholic.org/declaration.htm

27 Кудрявцев Э. В. (1996) Соловьев как основоположник христианской экологии в России. *Конференция «Христианство и экология»*. СПб.: Фонд им. В. С. Соловьева.

28 Basic Principles of the Social Concept of the Russian Orthodox Church. (2000) Ch. XIII. The Church and ecological problems. – *See* **Appendix no. 3.**

29 Here appears the notion *oikonomos* (Gr.) – 'housekeeper'. Orthodox discourse preserves the literal translation instead of widespread 'steward; stewardship'.

30 *Oikos* (Gr.) – 'house; home'. It is worth to remind that notion **'ecology' stems from Greek word** *oikos***,** primarily understood as 'God's house or dwelling place; God's people; family' – semantically the relationship is stressed instead of the physical building.

31 *See*: Yannaras Ch. (1996) *The Freedom of Morality*; Horujy S. (2005) *Crisis of Classical European Ethics in the Prism of Anthropology*; Theokritoff E. *'Thine of Thine Own': Orthodoxy and Ecology*, etc.

32 Yannaras, p. 196.

33 Yannaras, p. 201.

34 Horujy S. (2005) [online] *Crisis of Classical European Ethics in the Prism of Anthropology.* Institute of Synergetic Anthropology. Available at: http://www.sinergia-isa.ru/

35 Revisiting Associative Democracy (2011)/ Ed.: Andrea Westall. Lawrence & Wishart, 91 p.

36 Rifkin J. (2004) *The European Dream: How Europe's Vision of the Future is Quietly Eclipsing.* Cambridge: Jeremy P. Tarcher Inc., p. 187.

37 *See also* McKnight J., Block P. (2010) *The Abundant Community: Awakening the Power of Families and Neighborhoods*. San Francisco: Berrett-Koehler.

BIBLIOGRAPHY

1. *Christianity and Ecology. Seeking the Well-Being of Earth and Hu*mans (2000)/ Eds.: Hessel Dieter T., Ruether Rosemary R. Harvard: Harvard University Center, 720 p.
2. Doyle D. M. (1992) Ecology and Vatican II. In: *The Church Emerging from Vatican II: a popular approach to contemporary Catholicism*. Mystic, Conn.: Twenty Third Publications, 349 p.
3. Garnaut R. (2008) [online] *The Garnaut Climate Change Review*. Cambridge University Press. Available: http://www.garnautreview.org.au/chp23.htm
4. Hallman David G. (2000) Climate Change: Ethics, Justice, and Sustainable Community. In: *Christianity and Ecology. Seeking the Well-Being of Earth and Humans/* Eds.: Hessel Dieter T., Ruether Rosemary R. Harvard: Harvard University Center, pp. 453-471.
5. Henriot P., de Berri M., Schultheis M. (1988) *Catholic Social Teaching: Our Best Kept Secret*. Maryknoll, NY: Orbis Books.
6. Horujy S. (2005) [online] *Crisis of Classical European Ethics in the Prism of Anthropology.* Institute of Synergetic Anthropology. Available at: http://www.sinergia-isa.ru/
7. Horujy S. (2005) [online] *Globalistics and Anthropology: an Approach to the Problem.* Institute of Synergetic Anthropology. Available at: http://www.sinergia-isa.ru/
8. McKnight J., Block P. (2010) *The Abundant Community: Awakening the Power of Families and Neighborhoods*. San Francisco: Berrett-Koehler.
9. Revisiting Associative Democracy: how to get more co-operation, co-ordination and collaboration into our economy, our democracy, our public services, and our lives (2011) [online]/ Ed.: Andrea Westall. Lawrence & Wishart, e-book. Available: http://www.lwbooks.co.uk/ebooks/RevisitingAssociativeDemocracy.pdf
10. Rifkin J. (2010) *The Empathic Civilization. The Race to Global Consciousness in a World in Crisis*. Cambridge: Jeremy P. Tarcher, Inc.

11. Rifkin J. (2004) *The European Dream: How Europe's Vision of the Future is Quietly Eclipsing*. Cambridge: Jeremy P. Tarcher, Inc.
12. Rockström J., Steffen W., Liverman D. (etc.) (2009) A Safe Operating Space for Humanity. In: *Nature*, Vol. 461/24.
13. Rockström J. *et al*. (2009) [online] Planetary Boundaries: Exploring the safe operating space for humanity. In: *Ecology and Society*, Vol. 14 (2): 32. Available: http://www.ecologyandsociety.org/vol14/iss2/art32; http://www.stockholmresilience.org/download/18.1fe8f33123572b59ab800012568/pb_longversion_170909.pdf
14. *The Science of Climate Change*. (2010) [online] Canberra: Australian Academy of Science. Available: http://www.science.org.au/reports/climatechange2010.pdf
15. Vitousek P., Mooney H., Lubchenco J., Melillo J. (1997) Human Domination of Earth's Ecosystems. In: *Science*, Vol. 277, pp. 494-499.
16. Yannaras Christos. (1996) *The Freedom of Morality*. New York: St. Vladimir's Seminary Press.
17. Кудрявцев Э. В. (1996) Соловьев как основоположник христианской экологии в России. *Конференция «Христианство и экология»*. СПб.: Фонд им. В. С. Соловьева.
18. *Христианство и экология*. (1997)/ Ред. Т. Горичева. СПб.: Русский Христианский гуманитарный институт.

Environmental Policy Documents

19. Environmental Policy Strategy (2009). Riga: Ministry of Environment.
20. Rio Declaration on Environment and Development. (1992) Rio de Janeiro.
21. The Kyoto Protocol on Climate Change. Available: http://unfccc.int/kyoto_protocol/items/2830.php

Environmental Documents of Catholic Social Teaching

22. Second Vatican Council, Pastoral Constitution on the Church in the Modern World (*Gaudium et Spes*), nos. 50-51. In: Austin Flannery (ed.) (1996) *Vatican Council II: The Conciliar and Post Conciliar Documents, new revised ed., 1st vol.* Northport, NY: Costello Publishing.
23. Pope John Paul II. (1990) *Peace with God the Creator, Peace with All Creation*. World Peace Day, January 1. Available at Catholic Conservation Centre: http://conservation.catholic.org/ecologicalcrisis.htm/
24. Pope John Paul II. (1990) *The Ecological Crisis: A Common Responsibility*. Washington, DC: USCC.
25. Pope John Paul II. (1996) International Solidarity Needed to Safeguard Environment. Address by the Holy Father to the European Bureau for the Environment. In: *L'Osservatore Romano*, June 26, 1996.
26. Pope John Paul II. (1991) *On the Hundredth Anniversary of* '*Rerum Novarum*', No. 38.
27. Pope John Paul II & Patriarch Bartholomew I of Constantinople. (2002) [online] *Declaration on the Environment*, June 10, 2002. Available at Catholic Conservation Centre: http://conservation.catholic.org/declaration.htm

28. *Global Climate Change: A Plea for Dialogue, Prudence, and the Common Good*. (2001) United States Conference of Catholic Bishops, June 15, 2001, 28 p.
29. *Renewing the Earth*. (1991) United States Conference of Catholic Bishops, Nov 14, 1991.
30. *A New Earth: An Environmental Challenge*. (2002) [online] Australian Bishops Conference. Available: http://www3.villanova.edu/mission/CSTresource/ecology/australia 2002.pdf
31. *The Call of Creation: God's Invitation and the Human Response: The Natural Environment and Catholic Social Teaching.* (2002) [online] Catholic Bishops Conference of England and Wales, 2002. Available: http://www3.villanova.edu/mission/CSTresource/ecology/england2002.pdf
32. "*You Love All That Exists…*". (2003) [online] Pastoral letter on the Christian Ecological Imperative from the Social Affairs Commission, Canadian Conference of Catholic Bishops. Canadian Conference of Catholic Bishops, 2003. Available: http://www3.villanova.edu/mission/CSTresource/ecology/canada2003.pdf

Orthodox Church on Ecology

33. *Basic principles of the Social Concept of the Russian Orthodox Church.* (2000) [online] Russian Orthodox Church. The official webpage of the Department for external Church relations. Available: http://www.mospat.ru/en/documents/social-concepts
34. Belopopsky A. [online] *Introduction to Christian Environmental Initiatives*. Available at the webpage of the Greek Orthodox Archdiocese of America: http://www.goarch.org/ourfaith/ourfaith8051
35. Chryssavgis J. (2003) *Cosmic Grace, Humble Prayer: The Ecological Vision of the Green Patriarch, Bartholomew I.* Grand Rapids, Michigan: William. B. Eerdmans Publishing Company.
36. Theokritoff E. [online] *The Orthodox Church and the Environmental Movement*. Available at the webpage of the Greek Orthodox Archdiocese of America: http://www.goarch.org/ourfaith/ourfaith8024
37. Theokritoff E. [online] *'Thine of Thine Own': Orthodoxy and Ecology*. Available at the webpage of the Greek Orthodox Archdiocese of America: http://www.goarch.org/ourfaith/ourfaith8022
38. *The Orthodox Churches and the Environment.* (1991) [online] Conclusions of the Inter-Orthodox Conference on Environmental Protection, Crete. Available at the webpage of the Greek Orthodox Archdiocese of America: http://www.goarch.org/ourfaith/ourfaith8060

Klimata izmaiņas un antropoloģiskās izmaiņas: Baznīcas sociālā mācība par ekoloģijas jautājumiem

Kopsavilkums

Raksts iztirzā klimata pārmaiņas kā ekoloģiskās krīzes būtisku sastāvdaļu un iezīmē integratīvo (zinātnisko, sociālo, ekleziālo) pieeju klimata pārmaiņu problemātikai un ekoloģiskās situācijas normalizācijas stratēģijām. Raksta mērķis ir iezīmēt sociālās apziņas (jeb antropoloģiskās dimensijas) faktora nozīmību ilgtspējīgas un ekoloģiskā līdzsvarā atrodošas sabiedrības kompleksajā attīstībā. Rakstā aplūkota tradicionālo kristīgo Baznīcu (pareizticīgo un katoļu) sociālās mācības loma un vieta starptautisko un vietējo klimata pārmaiņu politikas kontekstā. Raksts aplūko pareizticīgo teoloģisko konceptu savstarpējai saistībai starp ekolololoģisko krīzi un antropoloģiskajiem procesiem, izvirzot cilvēka personu (antropos) kā centrālo klimata pārmaiņu simbolu.

Atslēgas vārdi: klimata pāmraiņas, antropogēnais faktors, katoļu sociālā mācība, Pareizticīgās Baznīcas ekoloģiskais koncepts, uz pieredzi pamatoa ētika, pilsoniskā sabiedrība

Mag. theol., assist. prof. **Dace Dolace**

Assistant professor at European Christian Academy, Latvian Social Dialogue Education Centre

Address: 5. līnija 3, Jūrmala, LV-2010, Latvia

Phone: +371 67753360; +371 29407580 (cell)

E-mail: teologija@kra.lv

APPENDIX / PIELIKUMS

APPENDIX 1 / PIELIKUMS Nr. 1

Rio Declaration on Environment and Development

The United Nations Conference on Environment and Development,

Having met at **Rio de Janeiro from 3 to 14 June 1992**,

Reaffirming the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972, and seeking to build upon it,

With the goal of establishing a new and equitable global partnership through the creation of new levels of cooperation among States, key sectors of societies and people,

Working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system,

Recognizing the integral and interdependent nature of the Earth, our home,

Proclaims that:

Principle 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Principle 2

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national

jurisdiction.

Principle 3

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

Principle 4

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Principle 5

All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

Principle 6

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

Principle 7

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Principle 8

To achieve sustainable development and a higher quality of life for all people, States should

reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

Principle 9

States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

Principle 10

Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

Principle 11

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and development context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

Principle 12

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Principle 13

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Principle 14

States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

Principle 15

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 16

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

Principle 17

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Principle 18

States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

Principle 19

States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

Principle 20

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

Principle 21

The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

Principle 22

Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Principle 23

The environment and natural resources of people under oppression, domination and occupation shall be protected.

Principle 24

Warfare is inherently destructive of sustainable development. States shall therefore respect

international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

Principle 25

Peace, development and environmental protection are interdependent and indivisible.

Principle 26

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

Principle 27

States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

Source: Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972 (United Nations publication, Sales No. E.73.II.A.14 and corrigendum), chap. I. Available: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163

APPENDIX 2 / PIELIKUMS Nr. 2

PEACE WITH GOD THE CREATOR, PEACE WITH ALL OF CREATION

Message of **Blessed John Paul II** for the celebration of the WORLD DAY OF PEACE,

January 1, 1990

INTRODUCTION

1. IN OUR DAY, there is a growing awareness that world peace is threatened not only by the arms race, regional conflicts and continued injustices among peoples and nations, but also by a lack of DUE RESPECT FOR NATURE, by the plundering of natural resources and by a progressive decline in the quality of life. The sense of precariousness and insecurity that such a situation engenders is a seedbed for collective selfishness, disregard for others and dishonesty. Faced with the widespread destruction of the environment, people everywhere are coming to understand that we cannot continue to use the goods of the earth as we have in the past. The public in general as well as political leaders are concerned abut this problem, and experts from a wide range of disciplines are studying its causes. Moreover, a new ECOLOGICAL AWARENESS is beginning to emerge which, rather than being downplayed, ought to be encouraged to develop into concrete programs and initiatives.

2. Many ethical values, fundamental to the development of a PEACEFUL SOCIETY, are particularly relevant to the ecological question. The fact that many challenges facing the world today are interdependent confirms the need for carefully coordinated solutions based on a morally coherent world view. For Christians, such a world view is grounded in religious convictions drawn from Revelation. That is why I should like to begin this Message with a reflection on the biblical account of creation. I would hope that even those who do not share these same beliefs will find in these pages a common ground for reflection and action.

I. "AND GOD SAW THAT IT WAS GOOD"

3. In the Book of Genesis, where we find God's first self-revelation to humanity (Gen. 1-3), there is a recurring refrain: "AND GOD SAW IT WAS GOOD". After creating the heavens, the sea, the earth and all it contains, God created man and woman. At this point the refrain changes markedly: "And God saw everything he had made, and behold, IT WAS VERY GOOD" (Gen. 1:31). God entrusted the whole of creation to the man and woman, and only then – as we read – could he rest "from all his work" (Gen. 2:3). Adam and Eve's call to share in the unfolding of God's plan of creation brought into play those abilities and gifts which distinguish the human being from all other creatures. At the same time, their call established a fixed relationship between mankind and the rest of creation. Made in the image and likeness of God, Adam and Eve were to have exercised their dominion over the earth (Gen. 1:28) with wisdom and love. Instead, they destroyed the existing harmony BY DELIBERATELY GOING AGAINST THE CREATOR'S PLAN, that is, by choosing to sin. This resulted not only in man's alienation from himself, in death and fratricide, but also in the earth's "rebellion" against him (*cf.* Gen. 3: 17-19; 4:12). All of creation became subject to futility, waiting in a mysterious way to be set free and to obtain a glorious liberty together with all the children of God (cf. Rom 8:20-21).

4. Christians believe that the Death and Resurrection of Christ accomplished the work of reconciling humanity to the Father, who "was pleased [..] through (Christ) to reconcile to himself ALL THINGS, whether on earth or in heaven, making peace by the blood of his cross" (Col. 1: 19-20). Creation was thus made new (*cf.* Rev. 21:5). Once subjected to the bondage of sin and decay (*cf.* Rom. 8:21), it has now received new life while "we wait for new heavens and a new earth in which righteousness dwells" (2 Pet. 3:13). Thus, the Father "has made known to us in all wisdom and insight the mystery [..] which he set forth in Christ as a plan for the fullness of time, to unite ALL THINGS in him, all things in heaven and things on earth" (Eph. 1: 9-10).

5. These biblical considerations help us to understand better THE RELATIONSHIP BETWEEN HUMAN ACTIVITY AND THE WHOLE OF CREATION. When man turns his back on the Creator's plan, he provokes a disorder which has inevitable repercussions on

the rest of the created order. If man is not at peace with God, then earth itself cannot be at peace: "Therefore the land mourns and all who dwell in it languish, and also the beasts of the field and the birds of the air and even the fish of the sea are taken away" (Hos. 4:3). The profound sense that the earth is "suffering" is also shared by those who do not profess our faith in God. Indeed, the increasing devastation of the world of nature is apparent to all. It results from the behavior of people who show a callous disregard for the hidden, yet perceivable requirements of the order and harmony which govern nature itself.

People are asking anxiously if it is still possible to remedy the damage which has been done. Clearly, an adequate solution cannot be found merely in a better management or a more rational use of the earth's resources, as important as these may be. Rather, we must go to the source of the problem and face in its entirety that profound moral crisis OF WHICH THE DESTRUCTION OF THE ENVIRONMENT IS ONLY ONE TROUBLING ASPECT.

II. THE ECOLOGICAL CRISIS: A MORAL PROBLEM

6. Certain elements of today's ecological crisis reveal its moral character. First among these is the INDISCRIMINATE APPLICATION of advances in science and technology. Many recent discoveries have brought undeniable benefits to humanity. Indeed, they demonstrate the nobility of the human vocation to participate RESPONSIBLY in God's creative action in the world. Unfortunately, it is now clear that the application of these discoveries in the fields of industry and agriculture have produced harmful long-term effects. This has led to the painful realization that WE CANNOT INTERFERE IN ONE AREA OF THE ECOSYSTEM WITHOUT PAYING DUE ATTENTION BOTH TO THE CONSEQUENCES OF SUCH INTERFERENCE IN OTHER AREAS AND TO THE WELL-BEING OF FUTURE GENERATIONS. The gradual depletion of the ozone layer and the related "greenhouse effect" has now reached crisis proportions as a consequence of industrial growth, massive urban concentrations and vastly increased energy needs. Industrial waste, the burning of fossil fuels, unrestricted deforestation, the use of certain types of herbicides, coolants and propellants,: all of these are known to harm the atmosphere and environment. The resulting meteorological and atmospheric changes range from damage to health to the possible future submersion of low-lying lands. While in some cases the damage already done may well be irreversible, in many other cases it can still be halted. It is necessary, however, that the entire human community – individuals, States and international bodies – take seriously the responsibility that is theirs.

7. The most profound and serious indication of the moral implications underlying the ecological problem is the lack of RESPECT FOR LIFE evident in many patterns of environmental pollution. Often, the interests of production prevail over concern for the dignity of workers, while economic interests take priority over the good of individuals and even entire peoples. In these cases, pollution or environmental destruction is the result of an unnatural and reductionist vision which at times leads to a genuine contempt for man.

On another level, delicate ecological balances are upset by the uncontrolled destruction of animal and plant life or by a reckless exploitation of natural resources. It should be pointed out that all of this, even if carried out in the name of progress and well- being is ultimately to mankind's disadvantage. Finally, we can only look with deep concern at the enormous possibilities of biological research. We are not yet in a position to assess the biological disturbance that could result from indiscriminate genetic manipulation and from the unscrupulous development of new forms of plant and animal life, to say nothing of unacceptable experimentation regarding the origins of human life itself. It is evident to all that in any area as delicate as this, indifference to fundamental ethical norms, or their rejection, would lead mankind to the very threshold of self-destruction. RESPECT FOR LIFE, AND ABOVE ALL FOR THE DIGNITY OF THE HUMAN PERSON, IS THE ULTIMATE GUIDING NORM FOR ANY SOUND ECONOMIC, INDUSTRIAL OR SCIENTIFIC PROGRESS. The complexity of the ecological question is evident to all. There are, however, certain underlying principles, which, while respecting the legitimate autonomy and the specific competence of those involved, can direct research towards adequate and lasting solutions. These principles are essential to the building of a peaceful society; no peaceful society can afford to neglect either respect for life or the fact that there is an integrity to creation.

III. IN SEARCH OF A SOLUTION

8. Theology, philosophy, and science all speak of a harmonious universe, of a "cosmos" endowed with its own integrity, its own internal, dynamic balance. THIS ORDER MUST BE RESPECTED. The human race is called to explore this order, to examine it with due care and to make use of it while safeguarding its integrity. On the other hand, the earth is ultimately A COMMON HERITAGE, THE FRUITS OF WHICH ARE FOR THE BENEFIT OF ALL. In the words of the Second Vatican Council, "God destined the earth and all it contains for the use of every individual and all peoples" (Gaudium et Spes, 69). This has direct consequences for the problem at hand. It is manifestly unjust that a privileged few should continue to accumulate excess goods, squandering available resources, while masses of people are living in conditions of misery at the very lowest level of subsistence. Today, the dramatic threat of ecological breakdown is teaching us the extent to which greed and selfishness – both individual and collective – are contrary to the order of creation, an order which is characterized by mutual interdependence.

9. The concepts of an ordered universe and a common heritage both point to the necessity of a MORE INTERNATIONALLY COORDINATED APPROACH TO THE MANAGEMENT OF THE EARTH'S GOODS. In many cases the effects of ecological problems transcend the borders of individual States; hence their solution cannot be found solely on the national level. Recently there have been some promising steps towards such international action, yet the existing mechanisms and bodies are clearly not adequate for the development of a comprehensive plan of action. Political obstacles, forms of exaggerated nationalism and economic interests – to mention only a few factors – impede international cooperation and long-term effective action. The need for joint action on the international level DOES NOT LESSEN THE RESPONSIBILITY OF EACH INDIVIDUAL STATE. Not only should each State join with others in implementing internationally accepted standards, but it should also make or facilitate necessary socio-economic adjustments within its own borders, giving special attention to the most vulnerable sectors of society. The State should also actively endeavor within its own territory to prevent destruction of the atmosphere and biosphere, by carefully monitoring, among other things, the impact of new technological or scientific advances. The State also has the responsibility of ensuring that its citizens are not exposed to dangerous pollutants or toxic wastes. THE RIGHT TO A SAFE ENVIRONMENT is ever more insistently presented today as a right that must be included in an updated Charter of Human Rights.

IV. THE URGENT NEED FOR A NEW SOLIDARITY

10. The ecological crisis reveals the URGENT MORAL NEED FOR A NEW SOLIDARITY, especially in relations between the developing nations and those that are highly industrialized. States must increasingly share responsibility, in complimentary ways, for the promotion of a natural and social environment that is both peaceful and healthy.

The newly industrialized States cannot, for example, be asked to apply restrictive environmental standards to their emerging industries unless the industrialized States first apply them within their own boundaries. At the same time, countries in the process of industrialization are not morally free to repeat the errors made in the past by others, and recklessly continue to damage the environment through industrial pollutants, radical deforestation, or unlimited exploitation of non-renewable resources. In this context, there is urgent need to find a solution to the treatment and disposal of toxic wastes.

No plan or organization, however, will be able to effect the necessary changes unless world leaders are truly convinced of the absolute need for this new solidarity, which is demanded of them by the ecological crisis and which is essential for peace. THIS NEED PRESENTS NEW OPPORTUNITIES FOR STRENGTHENING COOPERATIVE AND PEACEFUL RELATIONS AMONG STATES.

11. It must also be said that the proper ecological balance will not be found without DIRECTLY ADDRESSING THE STRUCTURAL FORMS OF POVERTY that exist throughout the world. Rural poverty and unjust land distribution in many countries, for example, have led to subsistence farming and to the exhaustion of the soil. Once their land yields no more, many farmers move on to clear new land, thus accelerating uncontrolled deforestation, or

they settle in urban centers which lack the infrastructure to receive them. Likewise, some heavily indebted countries are destroying their natural heritage, at the price of irreparable ecological imbalances, in order to develop new products for export. In the fact of such situations it would be wrong to assign the responsibility to the poor alone for the negative environmental consequences of their actions. Rather, the poor, to whom the earth is entrusted no less than to others, must be enabled to find a way out of their poverty. This will require a courageous reform of structures, as well as new ways of relating among peoples and States.

12. But there is another dangerous menace which threatens us, namely, war. Unfortunately, modern science already has the capacity to change the environment for hostile purposes. Alterations of this kind over the long term could have unforeseeable and still more serious consequences. Despite the international agreements which prohibit chemical, bacteriological and biological warfare, the fact is that laboratory research continues to develop new offensive weapons capable of altering the balance of nature. Today, any form of war on a global scale would lead to incalculable ecological damage. But even local or regional wars, however, limited, not only destroy human life and social structures, but also damage the land, ruining crops and vegetation as well as poisoning soil and water. The survivors of war are forced to begin a new life in very difficult environmental conditions, which in turn create situations of extreme social unrest, with further negative consequences for the environment.

13. Modern society will find no solution to the ecological problem unless it TAKES A SERIOUS LOOK AT IS LIFESTYLE. In many parts of the world society is given to instant gratification and consumerism while remaining indifferent to the damage which these cause. As I have already stated, the seriousness of the ecological issue lays bare the depth of man's moral crisis. If an appreciation of the value of the human person and of human life is lacking, we will also lose interest in others and in the earth itself. Simplicity, moderation and discipline, as well as a spirit of sacrifice, must become a part of everyday life, lest all suffer the negative consequences of the careless habits of a few. AN EDUCATION IN ECOLOGICAL RESPONSIBILITY is urgent: responsibility for oneself, for others and for the earth. This education cannot be rooted in mere sentiment or empty wishes. Its purpose cannot be ideological or political. It must not be based on a rejection of the modern world or a vague desire to return to some "paradise lost". Instead, a true education in responsibility entails a genuine conversion in ways of thought and behavior. Churches and religious bodies, non-governmental and governmental organizations, indeed all members of society, have a precise role to play in such education. The first educator, however, is the family, where the child learns to respect his neighbor and to love nature.

14. FINALLY, THE AESTHETIC VALUE OF CREATION CANNOT BE OVERLOOKED. Our very contact with nature has a deep restorative power; contemplation of its magnificence imparts peace and serenity. The Bible speaks again and again of the goodness and beauty of creation, which is called to glorify God (*cf.* Gen. 1:4ff; Ps. 8:2; 104:1ff; Wis. 13: 3-5; Sir. 39:16, 33; 43:1, 9). More difficult perhaps, but no less profound, is the contemplation of the works of human ingenuity. Even cities can have a beauty all their own, one that ought to motivate people to care for their surroundings. Good urban planning is an important part of environmental protection, and respect for the natural contours of the land is an indispensable prerequisite for ecologically sound development. The relationship between a good aesthetic education and the maintenance of a healthy environment cannot be overlooked.

V. THE ECOLOGICAL CRISIS: A COMMON RESPONSIBILITY

15. Today the ecological crisis has assumed such proportions as to be THE RESPONSIBILITY OF EVERYONE. As I have pointed out, its various aspects demonstrate the need for concerted efforts aimed at establishing the duties and obligations that belong to individuals, peoples, States and international community. This not only goes hand in hand with efforts to build true peace, but also confirms and reinforces those efforts in a concrete way. When the ecological crisis is set within the broader context of THE SEARCH FOR PEACE within society, we can understand better the importance of giving attention to what the earth and its atmosphere are telling us: namely, that there is an order in the universe which must

be respected, and that the human person, endowed with the capability of choosing freely, has a grave responsibility to preserve this order for the well-being of future generations. I wish to repeat that THE ECOLOGICAL CRISIS IS A MORAL ISSUE. Even men and women without any particular religious conviction, but with an acute sense of their responsibilities for the common good, recognize their obligation to contribute to the restoration of a healthy environment. All the more should men and women who believe in God the Creator, and who are thus convinced that there is a well-defined unity and order in the world, feel called to address the problem. Christians, in particular, realize that their responsibility within creation and their duty towards nature and the Creator are an essential part of their faith. As a result, they are conscious of a vast field of ecumenical and interreligious cooperation opening up before them.

16. At the conclusion of this Message, I should like to address directly my brothers and sisters in the Catholic Church, in order to remind them of their serious obligation to care for all creation. The commitment of believers to a healthy environment for everyone stems directly from their belief in God the Creator, from their recognition of the effects of original and personal sin, and from the certainty of having been redeemed by Christ. Respect for life and for the dignity of the human person extends also to the rest of creation, which is called to join man in praising God (*cf.* Ps. 148:96). In 1979, I proclaimed Saint Francis of Assisi as the heavenly patron of those who promote ecology (*cf.* Apostolic Letter *Inter Sanctos*: AAS 71 (1979), 1509f). He offers Christians an example of genuine and deep respect for the integrity of creation. As a friend of the poor who was loved by God's creatures, Saint Francis invited all of creation – animals, plants, natural forces, even Brother Sun and Sister Moon – to give honor and praise to the Lord. The poor man of Assisi gives us striking witness that when we are at peace with God we are better able to devote ourselves to building up that peace with all creation which is inseparable from peace among all peoples. It is my hope that the inspiration of Saint Francis will help us to keep ever alive a sense of "fraternity" with all those good and beautiful things which Almighty God has created. And may he remind us of our serious obligation to respect and watch over them with care, in light of that greater and higher fraternity that exists within the human family.

APPENDIX 3 / PIELIKUMS Nr. 3

Basics of the Social Concept of the Russian Orthodox Church

XIII. The Church and ecological problems

XIII. 1. The Orthodox **Church**, aware of her responsibility for the fate of the world, **is deeply concerned for the problems generated by the contemporary civilisation. Ecological problems occupy a considerable place among them**. Today the face of the Earth has been distorted on a global scale. Damaged are its bowels, soil, water, air and fauna and flora. Nature around us has been almost fully involved in the life support of man who is no longer satisfied with its diverse gifts, but exploits without restrain whole ecosystems. Human activity, which has reached the level of biospheric processes, constantly grows due to the accelerated development of science and technology. The pollution of the environment by industrial wastes everywhere, bad agricultural technology, the destruction of forests and top-soil – all result in the suppressed biological activity and the steady shrinking of the genetic diversity of life. The irreplenishable mineral resources are being exhausted; the drinking water reserves are being reduced. Great many harmful substances have appeared, not included in the circulation and accumulated in biosphere. The ecological balance has been violated; man has to face the emergence of pernicious processes in nature, including the failure of its natural reproductive power.

All this happens against the background of an unprecedented and unjustified growth of public consumption in highly developed countries, where the search for wealth and luxury has become a norm of life. This situation has obstructed the fair distribution of natural resources, which are common human property. The consequences of the ecological crisis have proved painful not only for nature, but also for man as organically integral to it. As a result, the Earth has found itself on the verge of a global ecological disaster.

XIII. 2. Relations between man and nature were broken in pre-historic times because of the fall of man and his alienation from God. Sin that was born in the soul of man damaged not only him himself, but also the entire world around him. «For the creature was made subject to vanity, not willingly, but by reason, of him who hath subjected the same in hope, because the creature itself also shall be delivered from the bondage of corruption into the glorious liberty of the children of God. For we know that the whole creation groaneth and traveileth in pain together until now» (Rom. 8: 1-22). The first human crime was reflected in nature like in a mirror. The seed of sin, having produced an effect in the human heart, gave rise to «thorns and thistles», as Holy Scripture testifies (Gen. 3:18). The full organic unity that existed between man and the world around him before the fall (Gen. 2: 19-20) was made impossible. In their now consumer relations with nature, human beings began to be more often guided by egoistic motives. They began to forget that the only Lord of the Universe is God (Ps. 23:1), to Whom belong «the heaven [..] and the earth also, with all that therein is (Deut. 10:14), while man, as St. John Chrysostom put it, is only a «housekeeper» entrusted with the riches of the earth. These riches, namely, «the air, sun, water, land, heaven, sea, light, stars», as the same saint remarks, God «divided among all in equal measure as if among brothers». «Dominion» over nature and «subjection» of the earth (Gen. 1:28), to which man is called, do not mean all-permissiveness in God's design. It only means that man is the bearer of the image of the heavenly Housekeeper and as such should express, according to St. Gregory of Nyssa, his royal dignity not in dominion over the world around him or violence towards it, but in «dressing» and «keeping» the magnificent kingdom of nature for which he is responsible before God.

XIII. 3. The ecological crisis compels us to review our relations with the environment. Today the conception of man's dominion over nature and the consumer attitude to it has been increasingly criticised. The awareness that contemporary society pays too high a price for the blessings of the civilisation has provoked opposition to economic egoism. Thus, attempts are made to identify the activities that damage the natural environment. At the same time, a system of its protection is being developed; the present economic methods are being reviewed; efforts are made to create power-saving technologies and wasteless

plants which can be fit at the same time into the natural circulation. The ecological ethics is being developed. The public consciousness guided by it speaks against the consumer way of life, demanding that the moral and legal responsibility for the damage inflicted on nature be enhanced. It also proposes to introduce ecological education and training and calls for joined efforts in protecting the environment on the basis of broad international co-operation.

XIII. 4. The Orthodox Church appreciates the efforts for overcoming the ecological crisis and calls people to intensive co-operation in actions aimed to protect God's creation. At the same time, she notes that these efforts will be more fruitful if the basis on which man's relations with nature are built will be not purely humanistic but also Christian. One of the main principles of the Church's stand on ecological issues is the unity and integrity of the world created by God. Orthodoxy does not view nature around us as an isolated and self-closed structure. The plant, animal and human worlds are interconnected. From the Christian point of view, nature is not a repository of resources intended for egoistic and irresponsible consumption, but a house in which man is not the master, but the housekeeper, and a temple in which he is the priest serving not nature, but the one Creator. The conception of nature as temple is based on the idea of theocentrism: God Who gives to all «life, and breath, and all things» (Acts 17:25) is the Source of being. Therefore, life itself in its various manifestations is sacred, being a gift of God. Any encroachment on it is a challenge not only to God's creation, but also to the Lord Himself.

XIII. 5. The ecological problems are essentially anthropological as they are generated by man, not nature. Therefore, answers to many questions raised by the environmental crisis are to be found in the human heart, not in the spheres of economy, biology, technology or politics. Nature is transformed or dies not by itself, but under the impact of man. His spiritual condition plays the decisive role here, for it affects the environment both with and without such an impact. The church history knows of many examples when the love of Christian ascetics for nature, their prayer for the world around them, their compassion for all creatures made a beneficial impact on living things.

Relationships between anthropology and ecology are revealed with utter clarity in our days when the world is experiencing two concurrent crises: spiritual and ecological. In contemporary society, man often loses the awareness of life as a gift of God and sometimes the very meaning of life, reducing it sometimes to the physical being alone. With this attitude to life, nature around him is no longer perceived as home and all the more so as temple, becoming only a «habitat». The spiritually degrading personality leads nature to degradation as well, for it is unable to make a transforming impact on the world. The colossal technological resources cannot help humanity blinded by sin, for, being indifferent to the meaning, mystery and wonder of life, they cannot be really beneficial and sometimes become even detrimental. In a spiritually disorientated man, the technological power would beget utopic reliance on the boundless resources of the human mind and the power of progress.

It is impossible to overcome the ecological crisis in the situation of a spiritual crisis. This does not at all mean that the Church calls to curtail the preservation activity, but in her hope for a positive change in the man-nature relationships, she relies rather on society's aspiration for spiritual revival. The anthropogenic background of ecological problems shows that we tend to change the world around us in accordance with our own inner world; therefore, the transformation of nature should begin with the transformation of the soul. According to St. Maxim the Confessor, man can turn the earth into paradise only if he carried paradise in himself.

Source: Basic principles of the Social Concept of the Russian Orthodox Church, XIII (2000). Russian Orthodox Church. The official webpage of the Department for external Church relations. Available: http://www.mospat.ru/en/documents/social-concepts/

Metamorphosis of Religious and Visual Signs in the Context of Climate Change: Education Prospects

Reliģisko un vizuālo zīmju metamorfoze klimata pārmaiņu kontekstā: izglītības aspekti

Dalia Karatajienė, Dr. (Lithuania)
Jolita Kudinovienė, Dr. sc. soc. (Lithuania)
Vaidas Matonis, , Dr. habil. sc. soc. (Lithuania)
Jurga Sidabrienė, Ph.D. st. (Lithuania)

The purpose of this article is to evaluate the impact of climate change on visual and religious signs and to discuss the prospects of education. The focus of our discussion is the concepts of religion and artistic education, including art-like phenomena and conceiving these phenomena in the natural environment. The article provides the reflection of human dependence on the effects of climate change throughout the long history of art, where the synthetic contents of religion and art remind of our fragile dependence on the natural reality. The relation of living beings with the environment is viewed systematically, covering all the spheres (atmosphere, hydrosphere, lithosphere, cryosphere and biosphere). Moreover, teachers' and students' value-based orientations towards the major causes of climate change (astronomic, geo-physical, internal climate alterations, atmospheric composition and anthropogenic) were viewed. The possibility of increasing the role of artistic and religious appreciation in the education of environmental awareness is the key aspect of this approach. Theoretical considerations are illustrated by both the pictures of students and the results of empirical research in value-based attitudes of primary school teachers and students of 9-12th classes.

Key words: climate change, environment, visual signs, religious signs, art, art history, education

1. Climate change and changing conceiving of natural environment: instead of introduction

In the course of history humans constantly observed certain effects of weather and climate change. Most climate changes conditioned various natural disasters, which were followed by long periods of famine, epidemics, wars or even migration of the whole nations to other places of living. With the warming of the weather, the quantity of precipitation increases, which enlarges the number and scope of natural disasters. The summer of 2003 was the warmest in the Alps during the last 2.5 thousand years, which may be a sign of considerable change in the future. As the fatal effects of climate change determine human world outlook, a search for new visions of world development is intensified in such moments as well as philosophic, artistic and religious activeness of human soul.

In all times of human beings life the climate change was manifested in different aspects, including their artistic and religion activity, however, contemporary environmental studies have become systematic. There are five main spheres of natural environment which are closely related with life existence. For example, the layer of air, which covers the globe, and its phenomena (clouds, winds, rain, thunder, snow, hail, fog, drizzle, etc.) undergo changes in *the atmosphere*. Oceans, seas, atmospheric waters, rivers, lakes, marshes, underwater, ice (especially ice sheets) and snow suffer from changes in *the hydrosphere*, which was the first place of the appearance of life. Therefore, these changes are examined more and more closely.

Changes occur also in *the lithosphere*, or the solid part of the earth, whose thickness is 50-200 km. The bowels of the earth crust (granites, marbles, rocks and fossils) are exhausted due to the increased human demands for consumption. However, extracting earth resources human beings "dig under themselves" and refuse to think of the possible outcomes.

Substantial and sometimes dangerous changes occur in *the cryosphere*, a sphere of zero or lower temperature, which covers part of atmosphere, hydrosphere and lithosphere. These include glaciers and mountain glaciers, ice covering of water bodies and ice clouds, snow covering and frost as well as permanent and seasonal freezing of the earth. The melting of ice has received considerable discussion recently. It is known that cryosphere also exists on Mars, which is also shifted due to climate change; however, the active impact of human beings on the changes on this planet will be observed probably much later, say, after the settlement of the first colonists of the earth.

Finally, a lot of concern is connected with the changes in the *biosphere*. The totality of ecosystems, which includes all the three layers of the earth surface, is affected by climate change in each of them. The soil, in which microorganisms survive up to 3 km deep, or water, where organisms can be found up to 11 km deep, or, finally, the air, where organisms can be traced in the height of 15 km (bacteria, plant spores) – everything is affected by climate change. All the three layers of the biosphere consist of two kingdoms: the kingdom of crawling, walking, swimming and flying *fauna* and different species of lower (bacteria, algae, fungi, lichen) and higher (a body having a stem, leaves and roots, except moss) *flora*. In spite of innumerable varieties of species within each of these categories, their extinction, which among others is also conditioned by climate change, becomes a subject of frequent discussion.

In order to give rise to environmental interests, enhance environmental awareness and enrich environmental experience of the younger generation, the aesthetic experience (among others) of natural environment changes could be employed. A. Berleant is

absolutely right when he claims: "Sensitivity, not just to the beauties but also to the offenses and injures to environment, is a precondition to recovering the fullness of the world" (1998, 3). The idea of the continuity of environment, which to a large extent manifests itself as its aesthetic fullness, sounds fairly convincingly. In contemporary philosophy of environment the connection between a body and environment leads to the identification of people and nature and is understood just as an imperative of aesthetic bodily engagement with the environment. Since, according to the philosophy of the body, we cannot see the world from any other standpoint but a human one, it is a weighty argument why "a philosophy of environment would both begin and end with the fact of human embodiment." (Berleant, 1998, 97). So, in this context the integration of a human body as a phenomenon of particular form would be a very important sign of the fullness of the natural part of the environment. In other words, environment as an object of aesthetic judgment might be seen at least as natural, built, human and human body environments.

The phenomena of the three-faceted natural environment – images, movements, sounds – often and often are considered as art-like because of their distinctive power: sunsets or pieces of driftwood, bird songs or storm sounds, moving clouds or playing of the young and so on. Although human beings are in constant contact with different elements of the natural environment, these elements are of unequal significance for them, and are rather differently appreciated by them. Furthermore, art-like phenomena in the natural environment are numerous and vary, that is why their aesthetic appreciation and conception is not less complex than that of applied art or even works of pure art. So, the ecological situation which is significantly determined by climate change calls, on the one hand, for an increasing role of environmental education, environmental aesthetic education inclusive, and, on the other hand, for increasing preferences to signs of climate change in the content of artistic and religious education.

Accordingly, the focus of our discussion will be the concepts of religion and artistic education, including art-like phenomena and five spheres of natural environment, along with peculiarities of conceiving of these phenomena. The possibility of increasing the role of artistic and religious appreciation in the education of environmental awareness is the key aspect of this approach.

The theoretical material is illustrated by the results of empirical research, obtained from the investigation of value-based attitudes of primary teachers of art and students of 9-12th classes towards aesthetic and environmental phenomena within the conditions of climate change.

The problem raised in the article is analyzed in two aspects: (1) expression of the natural artlikeness and the effects of climate change in art history and (2) teachers' and students' opinion about possible ominous after-effects of climate change.

2. Expression of natural artlikeness and the effects of climate change in art history

It is known that contemporary societies due to extensive industrialization, do not feel such affinity with nature as they did in the past. Nevertheless, natural environment remains were it is, and, in order to survive, people have to mind it. New philosophies of nature may appear in the future, but in any case the aesthetic facet as an integral part of them will always have a relevant place. Closer relations of the younger generation with the natural objects and phenomena in the age of rapid urbanization are inevitable.

Therefore, education of environmental awareness is to be supported and included into schooling. Inasmuch as natural environment is increasingly appreciated for its aesthetic value, aesthetic environmental education is to be supported as well.

Using of the phenomena of natural art-likeness in the process of education

Art-like phenomena, which are met either in the human environment or in the built or human body environment, are produced mostly for utilitarian purposes. However, alongside with their utility, they could be conceived artistically as well, that is why they are frequently referred to as applied art. Although objects of applied art are mainly understood as physical by their nature (artifacts), non-physical manmade objects or performances (such as a good speech or invented formula or sporting performance) to a great extent share the property of utilitarianism with the physical artifacts and, consequently, might be conceived as the objects of applied art, too.

The concept of art-like phenomena is one of the newest in aesthetics which is not always found satisfactory. Finnish philosopher M. Honkanen has named by the concept of art-likeness such elements of everyday environment which are immediately distinguished from the trite monotony. At the same time he expresses some discontent with it and notes that he has used it "somewhat inaccurately." (1995, 171). Anyway, this concept has become popular enough and is in common use among the majority of modern aestheticians. The proper space of such phenomena that are denoted by the term of art-likeness could be understood as some parts of non-artistic environment, which have the potential to be conceived as artistic values. Such a result could be achieved both due to the distinctive features of the perceived phenomenon and artistic attitudes (or aesthetically intentional activity) of the perceiver. The most typical expressions of such attitudes are not only those that are seen "as art" ("like a painting," "like a sculpture," "the choir of the birds" and the like) but also various comparisons, when, e.g., the artist as such is compared with one or another distinctive natural phenomenon (for instance, a singer "like a nightingale").

The most essential difference between art works and art-like phenomena is found, first of all, in the shift of perspective: the perspective of the creator becoming that of the conceiver. After such postmodern inversion the well-known criteria of artistry, such as professionalism, originality and authenticity began to give way to more apt criteria, reflecting the standpoint of the conceiver, i.e., expressiveness, symbolism and interpretation. Thus, due to the absence of creative mastership as well as usefulness of applied art, the art-like phenomena conceived in natural environment are found to be situated somewhere beyond the fields of pure and applied art.

Today it is far not unusual to say that people have lost former closeness to nature and only some of them are still capable of enjoying aesthetically natural phenomena. The question discussed further is the aesthetic response to art-like phenomena in their integrity. How could the three above mentioned dimensions of environmental experience (visual, auditory and kinesthetic) be effectively exploited in educating younger generation? The first thing is to accept the conception of positive aesthetics of natural beauty, including the natural beauty of the Earth, according to which the Earth, with its original biological diversity, is beautiful. It means that preservation of various kinds of wilderness could support the beauty of our Earth, and that is why biological diversity should be preserved (Arntzen, 1998).

The goals of the contemporary society should include saving the closeness of people of digital culture with nature. In this context, relation of the younger generation with natural objects should be supported as well. Children are the ones who feel the inspiring influence of nature's powers most by perceiving nature as a fairy-tale disclosing itself to them. Art-like manifestation of the surrounding objects is related to various aesthetic properties such as beauty, ugliness, daintiness, sublime, graceful and so forth.

On the other side, perception of the phenomena of natural environment can evoke some spiritual uneasiness and inspire to create pro rata religiously and aesthetically important pieces of art. Lithuanian ethnologist P. Dundulienė (1991) pointed out that in all times peoples' eyes were directed to heaven and therefore for example Lithuanian roads were decorated by different kinds of poles and crosses from the very ancient times.

The more various spheres of knowledge react towards the threat of climate change, the more variegated forms of spirituality are transferred. The capture of human dependence on nature is observed from the early examples of ornamentation until present-day artworks of various genres.

Expression of religious and artistic attitudes towards climate change in the art history and education

Though the origins of visual language and religion are already observed in the severe mists of late Paleolithic age, which lasted from 40 000 B.C. till 10 000 B.C., the mankind needed a lot of time to develop them into religious and visual symbols. Today they are known as the first Neolithic ornaments, which speak of the cyclic nature of climate change and their importance for human existence. At the end of the last Wurm (or Valdai) ice age, around 9 500 B.C. in the Near East there formed a climate, which was suitable for agriculture with rainy and warm winters as well as dry and warm summers. Agriculture, which substituted the practice of hunting and gathering of Paleolithic nomads, tied the inhabitants of Neolith to the land thus making them sedentary. Harvest expectations demanded both the development of new working skills and abilities to follow the changes in the sky in search for suitable signs for sowing and harvesting in the changes of Solar and Lunar phases. Neolithic agricultural cultures, in which there appeared the first larger settlements, such as Hasilara and Jericho saw the rise of ceramics decorated with ornamental rythms reflecting periodicity and cycles of seasons. Moving towards Europe and developing the types of ornaments, Neolithic agricultural culture created the first calendars and cosmologic conception of the world. The culture of Narva – Nemunas (5-4 c.c. B.C.), which extended from Estonia to North Lithuania, left a unique type of ceramics, decorated with string imprints and herringbone motifs as well as reasoned assumptions about the first ritual feasts. Calendar feasts are guidelines of farmers' life and activity. In the annual circle of nature they marked the most prominent and climactic points. Some of them were related to annual dates, especially solstice, others were linked to labour. Calendar feasts are arranged in accordance with seasons or correspond to the cycles of seasonal agricultural activities. Therefore, feasts arranged peasants' labour and activities in a particular order; the ancestors' spiritual heritage was delivered from generation to generation alongside with the agricultural experience, where feast traditions were regarded as a spiritual guide.

The mention of large settlements or cities is not accidental. According to the father of social anthropology E. Durkheim (1858-1917), religious images of any faith reflect collective reality, the group being at its basis and functioning as an essential condition of the birth of religious images; these images are supported by rituals performed in the groups (Durkheim, 1995). They can be reasonably interpreted as seasonal periodicity, which developed as a result of climate change and is reflected in spatial, temporal and spatio-temporal art forms: in ornaments of household articles or theatricalized feasts arranged following strict calendar regulations. Hence, it is of no surprise that calendar feasts of Neolithic people, which had correspondent visual signs in farmers' ornaments, developed into the World or Life Tree reflecting its cosmogonist system in the creation of many nations. Calendar feasts – winter solstice, spring equinox – were later legalized by ancient states. For instance, winter solstice, celebrated in December, was celebrated as *Dies natalis Solis Invicti* in Rome, whereas following Julius' calendar, January 6 was commemorated as the day of Osiris, god of the sun.

Plant and animal ornaments tressed in art works are often related to cosmic images. In pagan times they signified the relations of the universe, the interaction of heaven and earth, which encouraged the birth, growth and thriving of plants and animals. The image of the interaction between the heaven and earth is closely related to the conception of the Cosmic Tree, which left deep marks in the religious cosmogonist images retained in the arts, folklore, rituals and choreography of most nations. Many researchers observe that Lithuanian myths about the Cosmic Tree have much in common with the Scandinavian myths. Both in Lithuanian and Scandinavian mythology, gods gathered together and judged people under the Ash, the Cosmic Tree. One of the Scandinavian myths tells about the evergreen Ash tree, which spreads three springs of water: the Past, the Present and the Future, which symbolize the unity and eternity of the universe, constant and unchanging transfer of natural power to Mother Earth. The Cosmic Tree was a pole, which usually consisted of three layers and was surrounded by suns, moons, birds, horses, snakes and other signs in Lithuanian and other nations' mythology. The images of the Cosmic Tree are found in the ornamentation of furniture and distaffs as well as in fabrics. The three zones correspond to the dynamism of the universe, active human activity on the land, the conception of his/her life continuity with the marked beginning, development and fadeaway, i.e., a constantly changing and repeated cosmogonist cycle.

The Life Tree is marked by the signs of the sun, the moon and stars in both Lithuanian and other nations' ornamentation. The cyclic nature of the Tree to die in autumn and regenerate in spring meant eternity and immortality of the soul as well as the conception of space and time. Both of them embrace elements of the past, present and future of the heaven, earth and underworld perceived as the periods of human life: ancestors, contemporaries and posterities.

The Life Tree modeled of the rapports of ornaments also reflects the place of the creation of the world, or, as the historian of religion M. Eliade (1907-1986) maintains, the sacral centre, whose symbolism became characteristic not only for the countries, cities, temples and castles, but also for the poorest human houses, such as nomadic hunters' tents, shepherds' yurts or sedentary farmers' homes. Consequently, every religious person locates him/herself in the world centre or at the spring of the absolute reality, i.e. at the "opening", which enables him/her to communicate with gods (Eliade, 1959, 52). The first medieval cathedrals in the West in their symbolical essence meant the center of creation, an equivalent of the heavenly Jerusalem on the earth or the

distant posterity of the Life Tree, chunky and austere in Romanticism and straight, tall and graceful in Gothic times. Such sayings of Christ as "Because the kingdom of God is within you" (Lk. 17: 20-21) or "Where two or three are gathered together in my name, there am I among them" (Mt. 18:20) are indications of the communal nature of Christian faith, maintained by church liturgies and feasts, whose dates frequently coincide with the dates of earlier calendar feasts. For instance, from the 4th century the Latin Christian branch of the Church started officially celebrating Redeemer's birth on December 25th, choosing the moment of winter solstice, when the day lengthens and the night gets shorter. Due to such a coincidence of feasts, Christians were especially encouraged to worship not the sun, but the One, who created it. Therefore, it is not accidental that the Redeemer's portrait was often placed on a golden radiant background or accentuated by a bright frame of germs, which encircled the Crucifix on the Bible coverings or sacral liturgy articles, holding the belief that "the divine radiation of light is concentrated on the exceptional objects" (Duby, 2004, 127). The cult of light, considered as a ritual of maintaining God's image in Gothic times, dating back to the distant Neolithic ornaments signifying the sun, transfused the whole Church: the figures of saints were transferred onto the translucent material – the glass.

Despite the fact that the life of medieval people was less dependent on climate change than that of Neolithic society, medieval Life Tree – the cathedral – like other urban objects underwent a certain influence of climatic and geographical peculiarities. They were manifested both in the form of the cathedral and the language of its décor. For example, the roof slopes of the cathedrals of northern countries were acute and upright protecting the cathedral from the weight of snow. This was insignificant for the protection of the French temples, whose roofs were sloping. The lack of sculpture décor in the exterior of Lithuanian temples was determined by the territory of Lithuania, which escaped from the Valdai ice sheets only in 3 500 B.C., which gave the country solid rock, hardly amenable to plastic treatment: granite and dolomite boulders brought from Scandinavia. The western facades of Gothic cathedrals were ornamented not by stone figures of saints, as in France or Germany, which were awarded by soft sediments like limestone, but by meandrous strings of profiled bricks. It has not been proved, but it is reasonably thought that the low height of cathedrals was also connected to climate change. So that the towers of a church "would back the sky", both Lithuania and English craftsmen did not need to strive for enormous heights: this was conditioned by frequent mists and fogs in these regions. Whatever the truth, H. Taine (1828-1893), a philosopher of arts of social positivism, who interpreted a work of art not as the artist's spontaneous expression but rather as a product of the environment consisting of three components: *race, milieu, moment* (1989) would be satisfied by this providence. Despite that positivist logics confines the freedom of creation and uniqueness of the artist's mission to the external factors, it cannot be rejected in examining more general issues of the peculiarities of art stylistics. V. Liutkus, an art critic, claims that "Lithuanian colorism", "coloristic tradition" and "coloristic school" were magic words of modern Lithuanian painting, which flourished in the first half of the 20th century (2003, 16), coined from the definitions of the works by the nine artists of the "Ars" group in 1932. These were the artists who painted mostly en plain air of all Lithuanian artists of those times. Having in mind the cold Lithuanian winters freezing the paint put on the canvas, it becomes clear why the images of branchy forms and brightly-coloured summers prevail in the landscapes of the "Ars" painters. The national character of the paintings is created by the expressive

motifs of roadside crosses, wooden statues of Pensive Christ ("Rūpintojėlis"), which alongside with pastose and free painting have acquired such power and expression, that it is sometimes difficult to determine what is dominant – nature or the religious figure – in the artwork. It is the suggestion of summer brightness and natural intensity that create the image of Lithuanian art, despite having suffered through the desacralized modern times, as having close ties with both folk art and its religious traditions where pagan agricultural ornaments are entwined with Christian symbols.

Regardless that we are separated from the first Neolithic settlements by both a substantial period of time and unquestionable differences in the world outlook, in 2009 commemorating the millennium of the name of Lithuania the sculpture "The Tree of Unity" by Tadas Gutauskas was raised in Vilnius. It is a nine-meter stone megalith representing an authentic form of the distaff and ornamented following the principles of its décor. A hundred names of famous personalities of the millennium are eternalized in the sun of the huge stone distaff. The idea of creating "The Tree of Unity" was stimulated by the problems of the contemporary society: loss of identity, confrontations and lassitude. It is built in Vingis Park, which for a long time united Lithuanians during the Lithuanian song and dance festivals and "Sąjūdis" meetings. "The Tree of Unity" authoritatively reminds of the synthetic contents of religion and art and its unifying power as well as our fragile dependence on the reality of nature.

Among various images the picture of *Life Tree* as a symbol of the unification of the universe is frequently found in the works of art students (*see* Figure 1). Its vision is extended by the explanation of the threats of climate change, the development of students' eye for the changes in nature and encouragement to draw their observations of the environment in art classes.

The phenomena caused by climate change are topical not only in the area of science and mass media. In different levels they appear in curriculums of various teaching subjects including art education. The pictures with the motifs of climate change are often closely combined with aspects of religion and environmental education. The aim of our empirical inquiry was to reveal teachers' and students' value orientations to both changing natural phenomena and the reasons that impact climate change. The interpretations of received data are shown below.

3. Teachers' and students' opinion about possible ominous after-effects of climate change

The dynamism of the change in recent times is too obvious and in some aspects even dangerous regardless that climate change are currently perceived as a continuous process. Human attempts to organize the environment differently from the way indicated by God to achieve earthly plenitude or heavenly felicity usually lead to the opposite result. Recognition of nature is often encouraged by artificial means. For instance, teachers and students are frequently invited to cognize nature and its phenomena using the latest achievement in technology (interactive boards, television, cinema, glossy magazines, etc.), which usually lead to pollution rather than positive results. On the other hand, while caring for the global phenomena, the care for one's history, culture and environment is often neglected.

Fig. 1. **Gabija Atmanavičiūtė. 11 years.**
Tree of life

Fig. 2. **Justas Mačiekus. 11 years.**
Flood

Fig. 3. **Edgaras Panusevič. 18 years.**
Choose what to believe

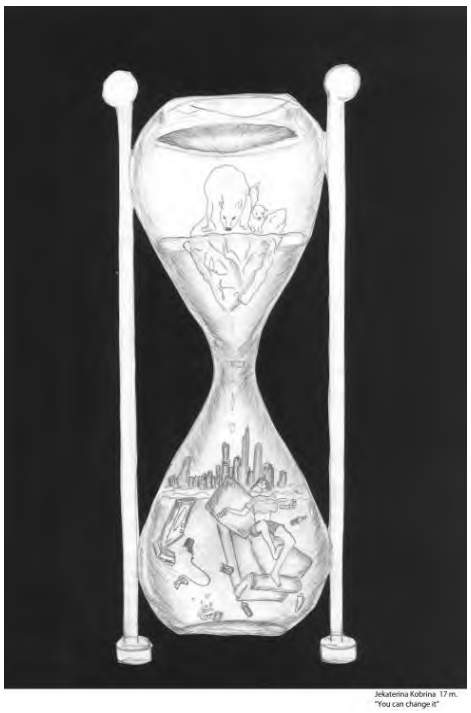


Fig. 4. **Jakaterina Kobrina. 17 years.**
You can change it

We believe that the effect of climate change on human life should be explored more systematically covering all spheres of nature linked to all living beings if we want to achieve more positive results. Students should be encouraged to search for new projects on the internet and take active participation in them, be able to observe and assess the changes in nature as well as look for the possibilities to clear the surrounding nature. Teacher-student interaction is achievable through the taught subject; therefore, the topic on the environmental issues could be discussed in all subjects as a constituent part of the course starting from the perception of the aesthetic values of nature and

observance of its unique beauty to the search for the ways of stopping the process of nature destruction. This should be done in accordance with the students' free choice based on the insights of environmental self-awareness. Skaidrīte Gūtmane, a Latvian philosopher and educator, states: "Living in a modern secular and democratic state, one should not forget about the dimension of spiritual freedom" (Gūtmane, 2009, 40).

The vision of nature makes a significant impact on children's emotional development and the formation of various abilities. Carrying out the preventive education in climate change, the students should be introduced to the work of non-governmental organizations, international and national projects, including those intended for schools, which are concerned with the discussed issues.

Students' vision is extended by the explanation of the threats of climate change, the development of students' eye for the changes in nature and encouragement to draw their observations of the environment in art classes. The vision of nature makes a significant impact on children's emotional development and the formation of various abilities (*see* Figures 1-4).

Lithuanian teachers and students of 9-12th classes conducted empirical research in the autumn of 2011, which revealed that teachers' (n=43) community was concerned with earlier studies of the effects of climate change. It was determined that teachers express common concern about the unpredictable effects of climate change on the surrounding environment: 74,4% of teachers assessed the formation of students' attitudes during the lesson in a highly positive way. Students (n=37) were less enthusiastic at this point: only 21,6% responded in a highly positive way, 45,9% provided positive responses, whereas 32,4% expressed no opinion.

The teachers and students were asked to evaluate the threat of changes in all the five nature spheres (atmosphere, hydrosphere, lithosphere, cryosphere and biosphere) within the range of five points, where "5" means that the sphere is most likely to be affected, and "1" stands for the sphere that is least likely to be affected. The conducted analysis of value-based attitudes of teachers and students revealed that the atmosphere will be affected by climate change most of all. The possibility of the changes in this sphere received almost four points. Whereas, according to teachers and students, lithosphere (the solid part of the earth surface) will be affected by climate change least of all. Having compared teachers' and students' answers, the teachers express larger concern about all the changes in all the five spheres rather than students. As far as value-based orientation towards the biosphere and cryosphere, the attitudes of teachers and students varied insignificantly; however, the teachers' concern was much bigger than students' in terms of the lithosphere, hydrosphere and especially atmosphere (see Figure 5).

There are a lot of reasons of the change of climate, which in its turn influence all the alterations around us. First of all, this includes the impact of external phenomena, namely, astronomic causes (the intensity of solar and galaxy radiation, the form of the Earth's orbit, the bent of the Earth's axis towards the plane of the orbit, the speed of the Earth's twist around its axis) and geo-physical reasons (gravital and magnetic fields of the Earth, vulcanization and geothermal heat). The internal causes of climate shifts, such as the composition of atmospheric gases and the quantity of aerosols, land relief and surface structure, changes in atmosphere and water circulation, also influence climate change. We have to conciliate and adapt to the external and internal causes, which in one or another way affect climate change, as they keep to their own objectivity and are not subject to consider human wishes or their spare possibilities. On the

other hand, a lot of phenomena affected by climate change do not receive people's immediate fear, as major changes occur slowly their development lasts for hundreds or even thousands of years. For instance, melting of glaciers or snow on mountain peaks are not sensed directly in comparison to volcano eruptions, earthquakes or tsunamis; they are mostly perceived by reasoning.

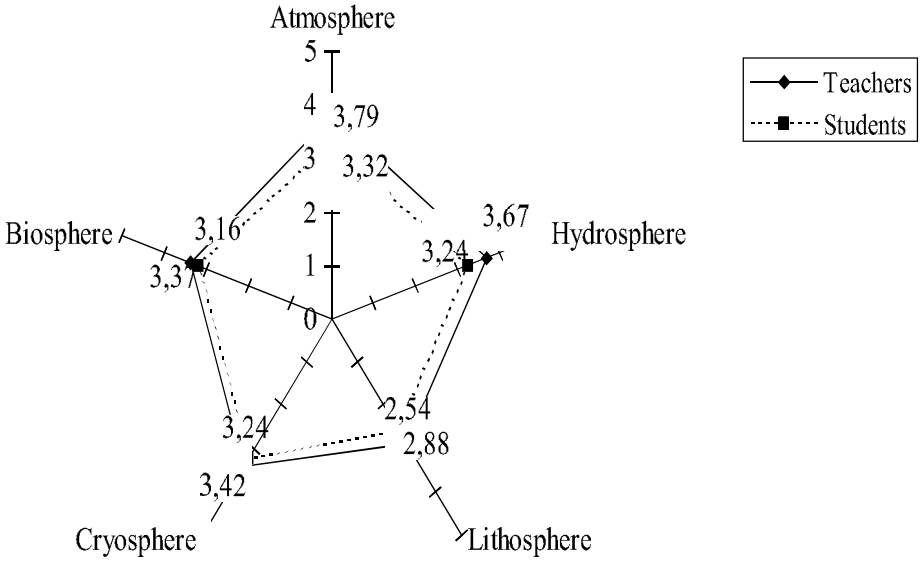


Fig. 5. **Value-based orientation of teachers and students in terms of the negative impact of climate change on the spheres of the natural environment**

The part of environment, which is affected by human activity, is perceived in a slightly different way. At the first sight, anthropogenic climate change seems insignificant in the context of its determinants; however, the results of this impact are threatening enough. In this respect, human beings become a kind of allies of those dangerous outcomes, which are caused by objective power of global climate change. Human-caused threats of climate change, which endanger the stable forms of life in the biosphere, are usually referred to as global warming and are related to the changes in greenhouse gas concentrations.

The teachers of arts in primary school, who were asked what causes (astronomic, geo-physical, internal climate alterations, atmospheric composition and anthropogenic) produce an especially huge impact on climate change, did not observe any significant changes in nature due to natural factors. 9% of teachers indicated astronomic causes, 14% – geo-physical, 11,6% – internal climate alterations, and 20,9% indicated atmospheric composition and anthropogenic theories. Human activity was referred to as the most serious cause enhancing climate change – by 44,2% of teachers.

Having compared the teachers' and students' value-based orientation towards the major causes of climate change (*see* Figure 6), the situation is similar as in the comparison of the changes of nature spheres: differently from teachers the students see lesser threats in all respects. The students' greater optimism is most probably a sign of their youthfulness. Besides, the impact of human activity on climate change seems more dangerous than other causes for both the teachers and the students. Perhaps this

sphere is most frequently announced in the media, or it may be the only sphere, which could be controlled. Astronomic, geo-physical or internal climate alterations cannot be controlled by humans, therefore, they are less emphasized.

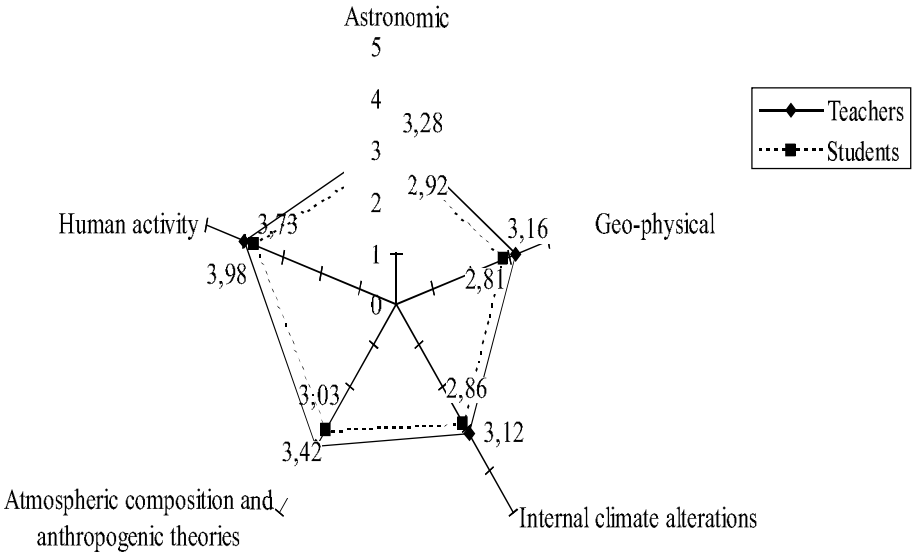


Fig. 6. **Value-based orientations of teachers and students in terms of the causes of climate change**

It is of interest that the average of neither the teachers' nor the students' evaluations regarding the spheres of the natural environment and the causes of climate change did not exceed four points of the possible five. This shows that the mass psychosis in terms of the negative impact of climate change has affected neither the youth nor the adults. On the other hand, the evaluation of nature spheres and main causes of their alterations did not go beyond three points. The teachers noticed the least changes in the lithosphere (2,88 points), whereas the students' evaluation comprised 2,54 points. Speaking of the causes of climate change, the students' average assessment was below three points in terms of the three causes: geo-physical causes were given 2,81 points, internal climate alterations – 2,86 points and astronomic causes – 2,92 points.

Biological diversity manifests itself in various forms of images, sounds and movements which are able to be aesthetically interiorized. Of course, the process of such interiorization is determined not only by direct perceptual experience of the elements under consideration, but also natural surroundings on the whole. For example, sometimes mentioned Disney World with its enormous multiplicity of gardenlike environments offers a high variety of multisensory activities and experiences and thus provide some educational impact. On the other hand, insofar as education is going to be organized mainly around the computer, multimedia technology could support the possibility not only to observe but also produce images, sounds and movements of all imaginable biological diversity. Such kind of aesthetic conception of environment through an active engagement of the subject in the surrounding world, despite the fact that this world is a result of virtual reality, is much more than *passive* visual or audible pleasure. Positive aesthetic attitude, obtained this way, in the course of time could find

its continuation in a perceptual experience of the aesthetic aspect of real environment. Furthermore, obtained positive attitude could support the development of aesthetic environmental criticism which would enable a child both to distinguish positive and negative aesthetic dimensions and solve various conflicts between aesthetic and economic values. Inasmuch as environmental aesthetics by its nature is coming to be recognized as an interdisciplinary subject and tends to encompass many interests, new integral educational programs, including different areas such as geography, biology, physics, religion, art and even music, ought to be introduced.

Another possibility enriching children's three-dimensional aesthetic experience of environment is employment of the latest achievements in education of multiple intelligences. For example, naturalist intelligence is seen in the way we relate to our surroundings, discloses a person's ability to identify and classify patterns in nature and includes the capacity to recognize flora and fauna (Gardner, 1999). Without any doubt, naturalist intelligence is closely related to three-dimensional environment in which images, sounds and movements characterize very important nuances of biological diversity. By the way, all three elements of natural environment serve as a medium for the development of other three human intellectual competencies, namely, spatial, musical and bodily-kinesthetic intelligences. Ultimately, the development of three-dimensional aesthetic experience of nature might be more effective if the understanding in the environment not only as beautiful or ugly but also as true or false and good or evil were enhanced (Matonis, 2000).

A lot of projects, which have become one of the most popular forms of creative activity, in schools are connected with the environment (including art-like phenomena). When asked if any projects on climate change are carried out in their schools, 79,1% of teachers responded positively. Projects are implemented through the integration of various subjects: natural sciences, history, geography, art, music, theatre, dance, information technologies, etc. The projects combine various means of information and creative expression: lectures, trips to natural parks, photography, film, montage, building nesting-boxes, gathering herbs, clearing the contaminated environment by collecting garbage and batteries, producing feeding boxes and toys from secondary raw materials, arranging concerts (oral productions, singing and dancing), organizing of exhibitions of drawings and posters on the topic of environmental issues. Using such forms of expression encourages the development of students' observation, ability to see, hear and assess, their neatness, prudence, intolerance for nature damaging as well as environmental skills. Children like art lessons, which are intended for the preservation of the environment. To the raised question "What expressive means would you choose to enhance nature protection?", 29,7% of students chose posters, 16,2% indicated sculpture and 8,1% named songs. The teachers indicated posters (27,9%) or integrated form of expression (a drawing, poster, individual verse or a song) (20,9%). Such cooperation of teachers and students strengthens their positive attitudes towards a more harmonious coexistence with nature.

In all times human beings were closely connected to nature and tried to make use of it for their own needs; first of all, using various amulets (pendants, jingles, masks), later they turned to prayers for gods and building poles, finally humans tried to change nature using the power of reason and faith. The educational attitude should be to teach the students to experience the aesthetic features of natural phenomena and human activity by responding to and evaluating their relation with religion, art and by creating art.

4. Conclusions

1. As the threat of climate change in one way or another is manifested in all spheres where there is life, it is expedient that the contents of artistic and religious education should systematically cover all the spheres of the surrounding natural environment: atmosphere, hydrosphere, lithosphere, cryosphere and biosphere, which would form an overall image of the climatically-changing natural world.
2. Human dependence on the capture of nature is observed from the early examples of ornamentation to present-day artworks of various genres, tell of the synthetic contents of religion and art and their unifying power as well as remind of our fragile dependence on the reality of nature.
3. The development of three-dimensional aesthetic experience (visual, auditory and kinesthetic) of nature might be more effectively exploited in educating younger generation if the understanding in the environment not only as beautiful or ugly but also as true or false and good or evil were enhanced.
4. The research of the teachers' and students' value-based attitude towards the effects of climate change revealed that they feel certain dismay about all the five spheres; however, the teachers expressed larger concern in comparison to the students. The teachers' and students' value-based orientation regarding biosphere and cryosphere differs inconsiderable; whereas in terms of lithosphere, hydrosphere and especially atmosphere the teachers' apprehension is much bigger than the students'. The respondents maintain that among the five nature spheres climate change would mostly affect the atmosphere (evaluated by almost four points), whereas the least impact would be on the lithosphere (the solid part of the globe).
5. The impact of human activity on climate change seems more ominous for both the teachers and the students comparing it to other forms of threats. Astronomic, geo-physical and internal climate alterations are less emphasized. The average mean of the students' assessment was below three points in terms of three causes: geo-physical causes were assessed by 2,81 points, internal climate alterations – by 2,86 points and astronomic causes – by 2,92 points. Despite the fact that the negative impact by humans on climate change seems most threatening for the respondents, it is purposeful to maintain a systematic approach of combining religious and artistic attitudes towards all the determinant factors of climate change in the educational process.

REFERENCES

1. *Biblija*. (1999) Vilnius: Lietuvos biblijos d-ja.
2. Arntzen Sven. (1998) Natural Beauty, Ethics and Conceptions of Nature. In: *XIVth International Congress of Aesthetics "Aesthetics as Philosophy". Proceedings, Part II. Filozofski Vestnik*, Vol. XX, No. 2. Ljubljana: Filozofski institut ZRS SAZU, pp. 291-301.
3. Berleant Arnold. (1998) *Living in the Landscape: Toward an Aesthetics of Environment.* Lawrence: University Press of Kansas.
4. Duby Georges. (2004) *Katedrų laikai. Menas ir visuomenė 980-1420.* Vilnius: Vilniaus dailės akademijos leidykla
5. Dundulienė Pranė. (1991) Lietuvių etnologija [*Lithuanian Ethnology*]. In: *Lietuvių menas ir jo simbolika. Lietuvių dailė.* Vilnius: Mokslas, pp. 315-330.

6. Durkheim Émile. (1995) *The Elementary Forms of Religious Life*/ Transl. & with an introduction by Karen E. Fields. New York: Free Press.
7. Eliade Mircea. (1959) *The Sacred and the Profane: the Nature of Religion: the significance of religious myth, symbolism, and ritual within life and culture*/ Transl. from French by Willard R. Trask. New York: Harcourt Brace Jovanovich.
8. Gardner Howard. (1999) *The Disciplined Mind: What All Students Should Understand.* New York: Simon & Shuster, Chapter 9, pp. 186-213.
9. Gūtmane Skaidrīte. (2009) Methodological Paradigm of Caritative Social Work. In: *Scientific Proceedings of Latvian Christian Academy, No. 2. European Social Development*. Riga: Latvian Christian Academy, pp. 31-40.
10. Liutkus Viktoras. (2003) Lietuvių kolorizmas: laikas pasirodyti. In: *Dailė* [*Art*], Nr. 1, 2003, pp. 16-19.
11. Honkanen Martti. (1995) Everyday values. In: *Art and Beyond: Finnish Approaches to Aesthetics.* Finland: International Institute of Applied Aesthetics & The Finnish Society for Aesthetics, pp. 168-174.
12. Matonis Vaidas. (2000) Art-Like Phenomena as a Source of Aesthetic Environmental Education. In: *Art, Life and Culture.* Seoul: Korean Society of Aesthetics & Institute for Arts and Culture Research, College of Humanities, Seoul National University, pp. 125-133.
13. Taine Hyppolite. (1989) *Meno filosofijos įvadas* [*Introduction to Philosophy of Art*]. Poetika ir literatūros eseistika II. Vilnius: Vaga.

Reliģisko un vizuālo zīmju metamorfoze klimata pārmaiņu kontekstā: izglītības aspekti

Kopsavilkums

Raksta mērķis ir izvērtēt klimata pārmaiņu ietekmi uz vizuālajām un reliģiskajām zīmēm un iztirzāt izglītības iespējas. Diskusijas centrā ir reliģiskās un mākslas izglītības koncepti, ietverot mākslas parādības, un uztverot šīs parādības to dabiskajā vidē. Raksts piedāvā refleksiju par cilvēka atkarību no klimata pārmaiņu radītajām sekām. Aplūkoti piemēri mākslas vēsturē, kur reliģijas un mākslas sintēze atgādina par mūsu trauslo atkarību no dabas. Cilvēka attiecības ar vidi ir aplūkotas sistemātiski, skarot visas jomas (atmosfēru, hidrosfēru, litosfēru, kriosfēru un biosfēru). Tāpat aplūkotas arī skolotāju un skolēnu vērtībās balstītie viedokļi par klimata pārmaiņu galvenajiem iemesliem (astronomiskajiem, ģeofiziskajiem, kā arī iztirzājot atmosfēras sastāvu un antropogēnos faktorus). Galvenais jēdziens šajā tematikā ir mākslinieciskās un reliģiskās uztveres un tās nozīmīguma pieaugošā loma vides izglītībā. Teorētiskos apsvērumus ilustrē skolēnu zīmējumi, gan empīrisko pētījumu rezultāti darbā ar pamatskolas un 9.-12. klašu skolēnu vērtībās balstītajām liecībām.

Atslēgas vārdi: klimata pārmaiņas, vide, vizuālās zīmes, reliģiskās zīmes, mākslas vēsture, izglītība

Dr., assoc. prof. (doc.) **Dalia Karatajienė**

Faculty of Educational Studies, Department of Arts Education, Lithuanian University of Educational Sciences

Address: Studentų st. 39-236, Vilnius, LT-08106, Lithuania

Phone: +370 (8 5) 275 7096; Fax: +370 (8 5) 275 70 960

E-mail: dkaratajiene@yahoo.com

Dr. sc. soc. (education), assoc. prof. (doc.) **Jolita Kudinovienė**

Head of the Department of Arts Education at the Faculty of Educational Studies, Lithuanian University of Educational Sciences

Address: Studentų st. 39-236, Vilnius, LT-08106, Lithuania

Phone: +370 (8 5) 275 7096; Fax: +370 (8 5) 275 70 960

E-mail: jolita.kudinoviene@vpu.lt

Dr. habil. sc. soc. (education), prof. **Vaidas Matonis**

Vice-Dean of the Faculty of Educational Studies at Lithuanian University of Educational Sciences

Address: Studentų st. 39, Vilnius, LT-08106, Lithuania

Phone: +370 (8 5) 275 7096; Fax: +370 (8 5) 275 70 960

E-mail: vaidas.matonis@vpu.lt (corresponding author)

Ph.D. student, assist. lect. **Jurga Sidabrienė**

Ph.D. student of Lithuanian University of Educational Sciences, Faculty of Educational Studies, Department of Arts Education

Address: Studentų st. 39-L230, Vilnius, LT-08106, Lithuania

Phone: +370 (8 68) 229 631

E-mail: jurga.sidabriene@vpu.lt

Semantics of Nature in Sculptor Ojārs Feldbergs' Art

Dabas semantika skulptora Ojāra Feldberga mākslā

Valentīna Liepa, Dr. paed. (Latvia)

The article reviews the works of the Latvian sculptor Ojārs Feldbergs, reveals philosophical language of his works and his vision of the world. His sculptures rarely have a human image; instead, he provides us with plastic signs and symbols. The source of his works is nature; they reflect images born out of the artist's dialogue with nature. Feldberg's view of the world is related to the spirit of pantheism, he is able to code this pantheistic view of the world by modern forms. He strives to see and feel a deeper meaning of the processes and phenomena, their primordial, symbolic expression. In his works, the sculptor talks about stone as about an image, a metaphor. He chooses typical motives and elements of Latvian landscape and culture – trees, meadows, and rivers. This is a poetic view, mythologized by the author, born and nurtured in his imagination, manifested in his sculptures as representation of typical phenomena or cultural signs. His works are full of sculptural dramaturgy. Feldbergs, by conceiving the mentality of stone, creates the link 'space-mass-consciousness'. Space is the surroundings, light, and situation. The sculptor often talks not only about external space; he is also concerned with the inner spiritual and intellectual space. Mass is the mentality of stone, while consciousness is the man's ability to see, understand and experience.

Often his works remind of an iconised image, the semantics of which shows a much wider conception of natural phenomena. This can be seen in Feldberg's work "The Primal Elements of the World". It occupies an important place among his works; for it he has been awarded Henry Moor Grand Prize.

***Key words*:** sculptor, sculpture, stone image, sign, symbol, nature element, form, semantic, culture space, primal elements of the world

Introduction

"Ai, dabas māte, svētā, augstā! Pie tavas krūts dusēt, tevi cienīt un apbrīnot kāds prieks, – tavos vārdos klausīties, tevī pavisam nogrimstot – kāda laimība, kāds baudījums! Cik atspirdzinoši dvēselei..." [Oh, mother nature, high, holy! To rest at your bosom, to revere you and admire what a joy, – to partake in your words sinking in you – what a happiness, what a pleasure! So refreshing for the soul...] (Dzīves palete, 1995, 25) These words about his relation to nature were spoken in a moment of reflection by the Latvian painter Janis Rozentāls. And indeed, nature is an indubitable,

eternal value that is common for all people. It is the value worth living for – worth seeing it, preserving it, showing its admirable beauty, harmony, and diversity. We all have something in common – the sky above our heads, rain, snow, hail coming from it, the sunshine above meadows and fields, the green of birch-trees in May, blue anemone carpets in April, golden glow of maples each autumn, clover in the russet clay soil, sunset, sunrise, moonlight, fog swathes – in short, all that complex of wonders given to us by nature. And of this totality it is rather easy to build the rest – the human, emotional, social totality and co-responsibility.

Thus it is no surprise that numerous painters have depicted in their art works this profoundity of nature, harmony and various moods – phenomena subjected to the flow of time that seem to belong to the Universe. All that it demands is subtle feeling of nature and creative perception of nature in one's being. Painting seems possible for that with its mean of expression as such; therefore the genre of landscape has such an important place in the world and especially in Latvian art.

In sculpture it is harder to reach these semantic translations of nature that would awaken thought and trigger off sensations; therefore the language of signs and symbols comes to be of help here. Besides, these symbols are revealed in the very processes of nature. In the course of time the sun – rising, reaching zenith and then setting down – produces one huge crescent; at night it continues its course and returns to the point of departure. The sun is a circle in its form and its course in the sky marks a circle. According to the scholar of Latvian ornaments Valdis Celms, "here starts the graphical interpretation". It may be depicted as a concentric circle or a cyclical process. Also fog as a shift from one state to another, rain as the heaven fertilizing the earth, etc. The measure of truth is contained in the very phenomenon of nature; the image must coincide with the essence of process. The essence of process entails the sign representing it. Perception and recognition of natural signs are based in the human experience, human knowledge of the cause-and-consequence-chain.

Ojārs Feldbergs is an outstanding sculptor conveying this semantics and feeling of nature in the language of stone sculpture.

Stone as a sign of nature and reflection of landscape culture space

"[..] at some point I came to understand myself, and it was you – stone – that helped me to do it. You are the material in which I reveal my feelings and experiences and in which I express my thoughts, all that surrounds my body and mind. You are the one lying between me and the sun, the mountain, the cloud, the sea, the field, the birch tree, the puddle and all that my eyes scan across, as if stroking with the hand all that God has created – permitting it to be felt and transformed into human experience. Since you are there, submerged in the river's current or lying in the bosom of the earth, serenely watching the world.

I came to understand that I did not wish to freeze my experiences in stone images, imbuing them with human forms. I came to appreciate that the two of us – the stone and I – can create a sign, a symbol, which materialized in a poetic form tells of a concept or an element of nature.

And you, the viewer, are given signs, so that you might sense yourself and the essence of all things, since a fallen apple is also a point, a furrow in a field is a line, the waves of the sea are an experience, the dawn is a feeling and the heavens are a spirit [..]" (Ojārs Feldbergs, 2007).

These are the words by the Latvian sculptor Ojārs Feldbergs expressing his relations to stone. Feldbergs is a person who is genuine, richly endowed with unusual ideas; he is the founder and the director of Pedvāle Open-Air Art Museum in Latvia.

The perception of his works demands a certain change of focus in the viewer's consciousness as they do not reveal the human image approbated in sculpture. The sculptor says, "I <...> am not interested in making busts or sculptures with arms and legs or severed heads that have been produced in thousands in this world. Analysing <...> these stand-still images with raised or lowered heads, smiling or sad faces, I saw in them some kind of the experience of the soul, traces of joy or sorrow. Yet something had caused all that in them. <...> I am attracted by depicting what the human can see. Turning it into an art work purifying of all that is redundant, generalizing it. So that a human being remains alive and regards this object and thinks" (Svece, 2003, 21).

"I came to understand that I do not wish to freeze my experiences in stone images, imbuing them with human forms. I came to appreciate that the two of us – the stone and I – can create a sign, a symbol, which materialized in a poetic form tells of a concept or an element of nature" (Ojārs Feldbergs, 2007).

That is why Feldbergs calls his sculptures plastic signs, plastic symbols. Where do these signs and these symbols come from?

First and foremost it is nature. The images of his works are as if born in the artist's dialogue with the nature. This is initiated by almost each step, each phenomenon, event, thing, person, the environment, and experience. The nature is unchangingly constant and in comparison with it the human may realize the shapes of his existence making them visible in the similarities of the forms of nature. "Landscape is one of my energy sources. I am very interested in all the processes and forms of the nature; it is an incessant parade of shapes and forms" (Cēbere, 2002, 9).

Ojārs Feldbergs is an artist whose world perception in essence is akin to the pantheist spirit. He has strived to regard and feel the deeper sense of natural processes and phenomena, their primordial essence, symbolical manifestation.

Stone is one of the oldest symbolical images. Owing to its hardness and constancy, stone is often associated with the eternal, unchanging, divine powers and is often perceived as an expression of concentrated force. Notwithstanding its hardness, it is often treated not as something frozen or dead but as the power of life. We have all experienced the radiation of energy from stone. According to the mythological notions and beliefs, stones have always been so lively present and semantically loaded that we still strive to perceive them as the bearers of mysterious messages and orphans in folk songs can find solace by them like one can do by the mother. Stones have participated in magic and sacrificial rites, served as mediating agents between the actual, tangible and the transcendental realm. Meteorites as the stones fallen from heaven have been worshipped as a symbolical bond between the heaven and the earth. Feldbergs treats stone as an image, a metaphor. He considers stone very powerful, it has so much inside it that one can extract from it anything, stones may become alive.

Feldbergs is more interested in boulders than in granite blocks produced in stone-quarries. Each boulder has its own fate and route in the processes of nature; during its journey until reaching us it has acquired its form. Working with stone the sculptor perceives it as if it was alive – in the sense that everything around us is alive – trees, meadows, the sea, everything the human being interacts with. The paradigms of modern conceptual ideas and visions also echo the standpoints and

associations characteristic of mythical thinking and imagination. Feldbergs sustains the pantheistic perception of nature thus encoding it in contemporary art forms. The artist considers that the rich code of notions engraved in stone must be open; it means motion, freedom contributing to a deeper perception of the form and encoded information. In fact, art must convey more mysteries and sense than a casual onlooker might perceive.

Treating stones as bodies formed by nature almost as living beings, Feldbergs often says that, having lain in the yards of country houses, by the side of roads and fields, in the forests, they have sustained the reflections of peasant life and Latvian scenic culture space. Therefore he often chooses characteristic motifs and elements of Latvian landscape and culture scenery – trees, birch groves, threshing barns, fields, and rivers. This poetic vision has been mythologized and cherished by the artist himself.

Semantics of nature

Landscape and motifs of Latvian rural environment that have been observed in nature and constructed in imagination are often revealed in Feldbergs' sculptures as the depiction of significant natural phenomena or culture signs – trees, hay stacks on the hill slopes, rain, framings of nature and human environment. Hence in his work "Birch Grove", birch-trees as a characteristic element of the nature in Latvia hail in a compact rhythmical stone mass, or the crowned hats of pine-trees sway in the winds of the sea-side creating a deep play of chiaroscuro.

In the works "The Shadow" and "The Fall", the object is bound with its own fate like a shadow always following us or a tree that gives its crown of leaves to the autumn ground.

Feldbergs in an expressed artistic form evaluates seemingly plain natural phenomena in his works "A Willow-Tree near the Field", "A Puddle on the Field", "A Pile of Potatoes". This simplicity of nature has been transformed into harmonious sculpture rhythms. In the composition "A Stream", the form of the stone horizontally placed into the bedrock dint creates an impression of the gurgling flow of the stream water, while "The River" produces its eternal flow between its banks. "Hay Stacks" on the hillside reveal almost panoramic scenery. These works produce the dramaturgy of sculpture. The control of reason places the forms in a strict rhythmic order purifying them to the clearness of geometric bodies.

It is considered impossible to depict fog, smoke and clouds in sculpture. However, Feldbergs in his perception of the mentality of stone creates an axis of correspondences among *space – mass – consciousness*, through and around which the definitions of sculpture ideas are ordered and find their place. Space is represented by the environment, light, and situation. The sculptor often speaks not only about the external space but also about the inner space of the spirit or mind. Mass is represented by the materiality of stones, whereas consciousness – by the human ability to observe, sense, and feel.

In the work "The Rain Cloud" we sense the weight of the cloud that gives refreshing rain showers to the ground, whereas the work "The Dawn" by means of the changing rhythms forms and chiaroscuro flows creates the feeling of the light of rising sun, specific state of a soul, an ethereal unison with the nature.

Generalization and universal regularities of being

The granite sculptures by Feldbergs reveal not only direct perceptions of nature but also abstract symbolized perceptions of universal regularities of existence. According to the artist, "I am attracted by the meaning of landscape in making sense of the world, cosmic self-awareness through a look into the landscape" (Ojārs Feldbergs, 2007). He comments on his work "A Fir-Tree", "I do not convey emotions but the essence of the fir-tree. I think about it. There is a trunk. Branches form a crown around the trunk, year after year, at the same distance. In the wind the branches move around the trunk. The range and kind of this motion endows them with a mass; hence their plasticity. Rhythm, motion, gradualness directed upwards forms a triangle silhouette from the ground to the sky, creating the spiritual. I think about the fir-tree, its lines, about the trunk – the base of life, the gradualness of formation of its crown – days, the flow of life. The forms are swaying in line with human emotions. The work encodes the spiritual instance" (Masa, 1982, 8).

The work "Towards the Peak" is commented by the author as follows: "Why do I have three goers there? It would probably be easier to go alone. But will you reach the peak on your own? And even if you set off alone, you still take along your doubts and your goal – and in that that way you are again three" (Ibid.). He continues, "I am interested in generalizations. The good – the bad, yes – no, white – black, the number three to which I attribute great significance. All that exists in any phenomenon or notion, both in the human relations and cosmic processes. And that may be depicted in any kind of manifestation – in a hand-shake, fog, the flow of the river, rain. I like nature. <...> the form must reveal the ideas acquired in the process of living" (Ibid.).

Thus, through the seemingly simple perceptions of nature by the artist, we may reach very complex, multi-significant understanding of the essence. The enchanting power of Feldbergs' art hides in its mesh with a deep culture layer – folklore, the philosophical aspect of folk songs, the perception of relation of the human and the world, the sense of universal vertical dominant being present in both the relation of the Cosmos and the Earth and the flight of power of human thought. His works intuitively entail the culture legacy. Art researcher R. Čaupova states, "The way Feldbergs perceives, hears, and understands stones is closely related to the holistic vision of the multidimensional semantics of nature phenomena and landscape being characteristic for the spirit of nature philosophy" (Ojārs Feldbergs, 2007).

His images often resemble iconized shapes revealing in their semantics a much wider scope of nature phenomena. This is obvious also in Feldbergs' work "The Primal Elements of the World".

The Hakone Open-Air Museum in Japan organizes the annual competition of sculpture works. Two prizes have been founded – the August Rodin Grand Prize and Henry Moore Grand Prize. They may be given annually to professional sculptors from all over the world. 740 works were submitted for the competition in 1991. 21 of them were selected by the jury for Henry Moore Grand Prize including Feldbergs' polytiptych "The Primal Elements of the World" consisting of four granite compositions "Air", "Water", "Earth", "Fire" that were envisaged for being placed in the open air on approximately 10 metre long axis. It remained in the permanent exhibition of the museum and is displayed against the background of clouds and snowy mountain peaks in the Utsukushi-Gahara sculpture park. The works are characterized by the simplicity and generalization of form, monumentality, and symbolism. The art

researcher Anda Treija describes this composition as follows, "The polytiptych 'The Primal Elements of the World' may be called exact sculpture. All is submitted to maximal precision and oriented towards maximal clarity. There is no chance, no pretence, just genuine qualities of mass, measure, dimensions, and resistance that have stood the test of time. As always, the compositions have been formed by analytical mind; they are cleverly built and homogeneous. This is sculpture grounded in the experience of conceptual art" (Treija, 1992, 10).

Instead of the visible, the sculptor has tried to express in these works his knowledge about the world. By means of geometrical forms and their symbolism he has provided explanation of notions and philosophical world perception.

The granite cube symbolizes the material world formed by four primal elements – air, water, fire, and earth. The cube symbolizes the eternity as well. Its side edges – quadrangles correspond to the four cardinal points. According to Pythagoreans, quadrangle symbolizes the different impact of the four primal elements representing the basic principles of the world structure. Above the granite cube Feldbergs placed a hemisphere. The quadrangle or cube pointing to the Earth is opposed to the sphere or hemisphere like a ring signifying the sky. For Feldbergs this is the symbol of cosmos, incessant motion, dynamic, sun rite. The line where the sphere merges with the cube creates a ring symbolizing a soul. The ring leads one back to oneself. Ring signifying the sky is opposed to the earth or the spiritual as opposed to the material. The soul unites us with the eternity and the higher spiritual substance. Ring is also the symbol of sun, cyclical movement and universal harmony, also infinity and perfection. Ring and quadrangle that in three dimensions appear as sphere and cube represent the image of the world in many cosmologies envisaging each other as space and time. The combination of these geometrical forms is the symbol of perfection of all that exists.

The smooth hemisphere above the granite cube symbolizes the air. According to the ancient Greek philosopher Anaximene, the air is filled with life, its condensation creates winds and clouds, gives rise to the earth and stones, hence – to the world. He says, "The air is like our soul that rules us and holds us together; thus breath and air surround the whole cosmos" (Kūle & Kūlis, 1997, 140).

Above the rest of granite cubes, the spherical surface of hemispheres is divided by nine circles. Numbers in the majority of cultures are symbols with a rich and complex symbolical meaning; it is even believed that the harmony existing in the world is based on numeric relations. Numbers express both the spatial and temporal relations as well the existing order of the Universe and the human life. Feldbergs is interested not only in the symbolism of geometrical forms but also in that of numbers. Nine is the triplication of the sacred number 'three' and denotes completion and totality, the highest perfection. In China a nine-storied pagoda is the symbol of heaven.

In the composition "The Earth" these nine circles form a succulent, heavy rhythm, stability, as the earth is not only the womb and origin of life but also the grave to which it returns.

"Fire" silhouette is more dynamic and shrewder in rhythm. According to the ancient Greek nature philosophy, fire is either the primal cause of everything that exists or one of the primal elements. Fire is associated with the notion of incessant inner motion. Fire moves by itself, as if being eternally alive. Fire represents the dynamic aspect of the world harmony. Let us recall Heraclites' well-known expression, "This order of the world – the same for everyone – has not been created by any god

or any human, it has always been, is and will be eternally living fire, flaring up and going out in its own measure" (Ibid., 143).

In the composition "Water" the rhythm of the nine circles of the hemisphere is serene and flowing. Water is the symbol of fecundity and life, carnal, soulful and spiritual purification and regeneration.

Feldbergs' "The Primal Elements of the World" are meditative works about the orderliness and harmony of the world, its opposites and unity, spirit and soul; they make one listen to oneself.

Feldbergs' sculptures convey a universal and in a sense abstract vision of the world. He has endowed simple and common motifs with a philosophical meaning and dimension reaching maximum saturation of images in his works. His explication of notions, the plastic language of signs is rich, figural, and precise. He is a philosophically oriented artist who is well aware of the power of impact of the form. Feldbergs admits that his sculpture is a specific way of thinking and awareness and that everyone may develop further the conceptual ideas being present in the configurations of forms by providing individual interpretations. His works are marked by "a special kind of clarity – piety, without notes of sentiment or slobber expressed confirmation of the sacred values of the nature as the base of existence and the environment cultivated by many a generation" (Ojārs Feldbergs, 2007).

These signs created by Feldbergs become worthy through our understanding them, they attract and drive our attention, create certain psychic states in our awareness. If we discern certain images, sense, and content beyond these signs, a bond with particular natural phenomena, a bond with spiritual symbols, it becomes an act of communication of artist, nature, and viewer. Signs function as intermediaries in this communication where we are on the one side and God's created nature on the other. There is a kind of universal primal beginning towards that we unconsciously strive to return to. We are bound with this universal primal beginning and Feldbergs' art makes us aware of it.

BIBLIOGRAPHY

1. Cēbere G. (2002) Ojārs Feldbergs: tas viss ir kā teātris [*Ojārs Feldbergs: that is all like a theatre*] In: *Māksla Plus*. Nr. 4, 4.-9. lpp.
2. Dzīves palete. *Jaņa Rozentāla sarakste* [*The Palette of Life. Correspondence of Janis Rozentāls*]. (1997) Rīga: Raiņa Literatūras un mākslas vēstures muzeja izd. "Pils".
3. Ojārs Feldbergs. *Akmens. Ainava* [*Ojārs Feldbergs. Stone. Landscape*]. (2007) Rīga: Neputns.
4. *Herdera vārdnīca. Simboli* [*Herder's dictionary. Symbols*]. (1994) Rīga: Pētergailis.
5. Kūle M., Kūlis R. (1997) *Filosofija* [*Philosophy*]. Rīga: Apgāds Burtnieks.
6. Masa – telpa – apziņa [*Mass – space – consciousness*]. (1982) *Literatūra un Māksla*. Nr. 36, 8. lpp.
7. Par zīmēm, mītiem un skaidru domāšanu (intervija ar Valdi Celmu) [*About signs, myths and clear thinking (interview with Valdis Celms)*] (2011) [online] (cited 14.09.2011.). Available: http://www.nacionalisti.lv/raksts/1055/kultura-tradicijas/par-zimem-mitiem-un-skaidru-domasanu-(intervija-ar-valdi-celmu)
8. Svece A. (2003) Ojārs Feldbergs. *Studija*. Nr. 29, 16.-25. lpp.
9. Treija A. (1992) Ar ticību sev [*With a hope to a self*]. *Māksla*. Nr. 1, 8.-10. lpp.

Dabas semantika skulptora Ojāra Feldberga mākslā

Kopsavilkums

Daba ir kā neapstrīdama, mūžīga un visiem cilvēkiem kopīga vērtība. Arī kā estētiska vērtība – ar savām harmoniskajām, daudzveidīgajām formām un krāsām, to kombinācijām. Tāpēc nav jābrīnās, ka liela daļa gleznotāju savos mākslas darbos ir attēlojuši tieši šo dabas bagātību, harmoniju un daudzveidīgās noskaņas.

Tēlniecībā šos dabas semantiskos tulkojumus, kas modinātu domu un izraisītu pārdzīvojumus, panākt ir grūtāk, tāpēc palīgā tiek ņemta zīmju un simbolu valoda. Dabisko zīmju uztvere, atpazīšana balstās cilvēka pieredzē, gūtajās zināšanās par cēloņu un seku saikni. Izcils dabas semantikas un izjūta atklājējs akmens tēlniecības valodā ir Ojārs Feldbergs.

„[..] kādā brīdī es sapratu sevi, un to izdarīt man palīdzēji tu – akmens.

Tu esi tas materiāls, kurā es atklāju savas jūtas, pārdzīvojumus un kurā izsaku savas domas, visu to, kas virmo apkārt manam ķermenim un prātam.

Tu esi tas, kurš atrodas starp mani un sauli, kalnu, mākoni, jūru, tīrumu, bērzu, peļķi un visu to, kam skatiens slīd pāri, it kā ar roku glāstot visu Dieva radīto, ļaujot to sajust un pārvērst cilvēciskā pārdzīvojumā. Jo tu atrodies tur, iegrimis upes straumē vai apgūlies zemes klēpī, un rāmi seko pasaules gaitai" (Ojārs Feldbergs, 2007) – tā par savām attiecībām ar akmeni izsakās latviešu tēlnieks Ojārs Feldbergs, neiedomājami darbīgs, ar neparastām idejām pārbagāts cilvēks, Pedvāles Brīvdabas mākslas muzeja Latvijā izveidotājs un uzturētājs.

Viņa darbu uztvere prasa zināmu pārorientēšanos skatītāja apziņā, jo tajos neredzēsim tēlniecībā ierasto cilvēka tēlu. Pats tēlnieks saka: „[..] mani neinteresē veidot krūšutēlus vai skulptūras ar rokām un kājām vai no cirstām galvām, kādas ir saražotas tūkstošiem pasaulē" (Svece, 2003, 21). „Es sapratu to, ka negribu sastindzināt savus pārdzīvojumus akmens tēlos, piešķirot tiem cilvēku veidolus. Es saprotu, ka mēs abi – akmens un es – varam radīt zīmi, simbolu, kas materializēts poētiskā formā, vēsta par kādu jēdzienu vai dabas elementu" (Ojārs Feldbergs, 2007). Tāpēc viņš savus tēlniecības darbus dēvē par plastiskām zīmēm, plastiskiem simboliem. Viņa darbu tēli it kā dzimuši mākslinieka divsarunā ar dabu.

Ojārs Feldbergs ir mākslinieks, kura pasaules uztvere pašā pamatā ir radniecīga panteisma garam. Viņš tiecies skatīt un sajust dabas procesu un parādību dziļāku jēgu, to pirmatnējo būtību, simbolisko apjausmi. O. Feldbergs runā par akmeni kā tēlu, kā metaforu.

Akmens jau pats pieder pie visvecākajiem simboliskajiem tēliem. Savas cietības un nemainības dēļ akmens jo bieži asociējas ar mūžīgiem, nemainīgiem, dievišķiem spēkiem un nereti tiek uztverts kā koncentrēta spēka izpausme.

Ojāru Feldbergu interesē laukakmens. Strādājot ar akmeni, tēlnieks to uztver kā dzīvu, ne tādā nozīmē kā cilvēka ķermenis, bet tādā, ka viss pasaulē ir dzīvs – koki, pļavas, jūra, tas viss, ar ko cilvēks dzīvo kopsakarībā. O. Feldbergs, saglabājot panteistisko dabas uztveri, spēj to iekodēt mūsdienīgās mākslas formās. Mākslinieks uzskata, ka akmenī iekaltajam jēdzieniski ietilpīgajam kodam jābūt arī atvērtam, tas nozīmē kustību, brīvību, kas palīdz dziļāk tvert formās iekodēto informāciju.

Ainava un Latvijas lauku vides motīvi – dabā vēroti un iztēlē konstruēti. O. Feldberga skulptūrās bieži atklājas raksturīgu dabas parādību vai kultūrzīmju atveidojumi, liekot sajust ainavu fragmentus – kokus, siena kaudzes piekalnē, lietus šaltis, dabas un cilvēka apdzīvotas vides izkadrējumus.

Tēlnieks daiļrunīgā mākslinieciskā formā pārvērtis šķietami necilas dabas parādības. Dabas vienkāršība, pat skarbums, pārvērties harmoniskos tēlnieciskos ritmos. Šie darbi ir sava veida tēlnieciska dramaturģija.

Pastāv uzskats, ka tēlniecībā nav iespējams attēlot miglu, dūmus, arī mākoņus. Tomēr O. Feldbergs, izprotot akmens mentalitāti, izveido sakarību asi „telpa-masa-apziņa", caur kuru un ap kuru kārtojas un savietojas tēlniecisko ideju definējumi. Telpa – tā ir vide, gaisma, situācija. Tēlnieks bieži runā ne vien par ārējo telpu, bet arī par iekšējo gara vai prāta telpu.

Ja darbā „Lietus mākonis" vēl sajūtams mākoņa smagums, kas atdod zemei veldzējošas lietus šaltis, tad darbā „Ausma" ar ritma un formas mainību, gaismēnas plūdumiem ir viena vienīga uzlecošas saules gaismas izjūta, īpašs dvēseles stāvoklis, ēteriska saplūde ar dabu.

O. Feldberga granītskulptūrās ir ne vien tieši dabas tvērumi, bet arī abstrahēti universālu esības likumsakarību simbolizēti tvērumi. Kā saka pats mākslinieks: „Mani piesaista ainavas nozīme pasaules apjēgšanā, kosmiskā sevis apzināšanā caur skatienu ainavā" (Turpat).

„Mani interesē vispārinājumi. Labais-sliktais, jā-nē, melns-balts, skaitlis trīs, kuram piešķiru lielu nozīmi. Tas viss eksistē jebkurā parādībā, priekšstatā. Gan cilvēku attiecībās, gan kosmiskos procesos. Un to var attēlot jebkurā izpausmē – rokas spiedienā, miglas vālā, upes tecējumā, lietus līšanā. Man patīk daba. [..] formā jāatklājas dzīves procesā iegūtajām atziņām" (Masa, 1982, 8). Bieži vien viņa darbu tēli ir kā ikonizēti veidoli, kuru semantikā parādās daudz plašāks dabas parādību skatījums. To var vērot arī O. Feldberga darbā „Pasaules pirmselementi", kas sastāv no četrām granīta kompozīcijām: „Gaiss", „Ūdens", „Zeme", „Uguns". Tēlnieks tiecies šajos darbos ielikt nevis to, ko redz, bet to, ko zina par pasauli. Ar ģeometriskām formām un to simboliku viņš sniedz jēdzienu skaidrojumu, filozofisku pasaules izpratni.

Granīta kubs simbolizē materiālo pasauli, kuru veido četri pirmelementi – gaiss, ūdens, uguns, zeme. Kubs simbolizē arī mūžību. Kuba sānu skaldnes – kvadrāti – atbilst četrām debess pusēm. Virs granīta kuba O. Feldbergs novieto puslodi. Kvadrāts vai kubs, kas norāda uz Zemi, ir pretstatīts lodei vai puslodei tāpat kā aplim un apzīmē debesis. O. Feldbergam tas ir kosmosa, nebeidzamas kustības, dinamikas, saules rita simbols. Robežā, kur lode saplūst ar kubu, veidojas aplis, kas simbolizē dvēseli. Aplis ved atpakaļ sevī. Aplis kā debesu apzīmējums ir pretstats zemei jeb garīgā pretstats materiālajam. Dvēsele mūs saista ar mūžību, vieno ar augstāko garīgo substanci. Aplis ir arī saules zīme, cikliska kustība un universāla harmonija, arī bezgalība un pilnība. Aplis un kvadrāts – trijās dimensijās kā lode un kubs – ir pasaules tēls daudzās kosmoloģijās, tie paredz viens otru kā telpa un laiks, šo ģeometrisko formu kombinācija ir kā visa pilnības simbols.

Gludā puslode virs granīta kuba simbolizē gaisu. Pēc sengrieķu filozofa Anahsimena domām gaiss ir dzīvības piestrāvots: gaisam sabiezējot, veidojas vēji un mākoņi, rodas zeme un akmeņi, tātad pasaule.

Virs pārējiem granīta kubiem pusložu sfērisko virsmu sadala deviņi loki. Skaitļi izsaka gan laika un telpas attiecības, gan esošo kārtību kosmosā un cilvēka dzīvē. Ojāru Feldbergu interesē ne tikai ģeometrisko formu simbolika, bet arī skaitļu simbolika. Kompozīcijā „Zeme" šie deviņi loki veido sulīgu, smagnēju ritmu, stabilitāti, jo zeme ir ne tikai klēpis, kurā aizsākas dzīvība, bet arī kaps, kurā tā atgriežas.

„Uguns" silueta ritms ir dinamiskāks, asāks. Uguns ir saistīta ar priekšstatu par nemitīgu iekšēju kustību.

Kompozīcijā „Ūdens" puslodes deviņu loku ritms ir mierīgs, plūstošs. Ūdens ir kā auglības un dzīvības, miesiskas, dvēseliskas un garīgas attīrīšanās un atjaunotnes simbols.

Tādējādi Ojāra Feldberga „Pasaules pirmelementi" ir meditējoši darbi par pasaules sakārtotību un harmoniju, pretstatiem un vienotību, garu un dvēseli, tie vedina ieklausīties sevī.

Ja mēs aiz šīm zīmēm redzam noteiktus tēlus, noteiktu jēgu un saturisko piepildījumu, saikni ar noteiktām dabas norisēm, saikni ar garīgiem simboliem, tad tā ir mākslinieka, dabas un skatītāja komunikācija. Zīmes ir kā starpnieki šai komunikācijā, kur vienā pusē esam mēs, bet otrā – Dieva radītā daba. Mēs esam saistīti ar šo universālo pirmsākumu un O. Feldberga māksla aicina to apzināties.

Atslēgas vārdi: skulptors, skulptūra, akmens tēls, zīme, simbols, dabas elements, forma, kultūrtelpa, pasaules pirmatnējie elementi

Dr. paed., assoc. prof. **Valentīna Liepa**

The Dean of the Faculty of Humanities at Daugavpils University, Associated professor at Department of Latvian Literature and Culture

Address: Faculty of Humanities, Daugavpils University, Vienības iela 13, Daugavpils, LV-5401, Latvia

Phone: +371 65424238; +371 20218334 (cell ph.);
Fax: +371 65422611

E-mail: valentina.liepa@du.lv