

# EXPLORATION OF POLITICAL ECOLOGY IN SLOVENIA

**ZNANSTVENA PRODUKCIJA** CENTER ZA POLITIČNO TEORIJU

Ljubljana 2017

**IZDAJATELJ:** Fakulteta za družbene vede, Center za politično teorijo

**ZA IZDAJATELJA:** izr. prof. dr. Andrej A. Lukšič

**COPYRIGHT:** FDV 2017

Vse pravice pridržane.

**RECENZENTA:** prof. dr. Jernej Pikalo, prof. dr. Cirila Toplak

**ZBIRKA:** Znanstvena produkcija

**PUBLIKACIJA:** Exploration of Political Ecology in Slovenia

**UREDIL:** izr. prof. dr. Andrej A. Lukšič

**OBLIKOVANJE IN PRELOM:** Jaka Modic

CIP - Kataložni zapis o publikaciji

Narodna in univerzitetna knjižnica, Ljubljana

329.63:502/504(497.4)(0.034.2)

EXPLORATION of political ecology in Slovenia [Elektronski vir] / [Andrej A. Lukšič (ur.)]. - El. knjiga. - Ljubljana : Fakulteta za družbene vede, Center za politično teorijo, 2017. - (Zbirka Znanstvena produkcija)

Način dostopa (URL): [www.fdv.uni-lj.si/raziskovanje/raziskovalni-centri/oddelek-za-politologijo/center-za-politico-teorijo](http://www.fdv.uni-lj.si/raziskovanje/raziskovalni-centri/oddelek-za-politologijo/center-za-politico-teorijo)

ISBN 978-961-235-823-5 (pdf)

1. Lukšič, Andrej

290908928

## About the authors – short biography

**TOMISLAV TKALEC, PhD**, works as the energy program coordinator in Focus Association for Sustainable Development. He is covering energy issues in the organization and his main experiences are working on policy processes related to energy efficiency and renewables in Slovenia and EU. He has been involved in several processes for developing EU and national legislation in the field of energy efficiency, in cooperation with European NGO networks, decision-makers and experts in the field. He has expertise and experience in energy poverty elimination through practical measures (IEE projects Achieve and REACH), promotion of renewable energy sources, networking with various energy related actors and community-based energy projects. He has worked on many national, regional and EU projects (FP7: EJOLT (Environment conflicts); IEE: ACHIEVE, REACH; HORIZON2020: ENERGISE). He holds a BA degree in Political science and PhD in Environment Protection (thesis: Political Aspects of Decentralization of Electricity Generation), both accomplished at University of Ljubljana.

**e-mail:** tomislav.tkalec@gmail.com

**ALEKSANDAR ŠOBOT, MA**, is a doctoral candidate at the study program Environmental Science, University of Nova Gorica, Slovenia. The field of research is a politics of governance natural resources with a focus on the countries of the former Yugoslavia where he completed his previous studies in the field of ecology and nature protection.

**e-mail:** ecosobot@gmail.com

**ANDREJA A. LUKŠIČ, PhD**, is Associate Professor of Political Theory and a Head of the Centre for critical approach to political science at the Faculty of Social Sciences, University of Ljubljana. At the Faculty of Social Sciences he teaches several subjects from political sciences at the undergraduate level, at graduate level he teaches Political Ecology. Since 1993 he is a director of The Institute of Ecology. He has experiences in editorial and project management, research and teaching at undergraduate, graduate and post-graduate level. His research and educational work focuses on relationships between various types of technologies, different forms of democracy and democratization, and green political theory. As a member of the Institute of Social Sciences he has been holder and cooperating in several different projects from political science field.

**e-mail:** andrej.luksic@fdv.uni-lj.si

**MAJA BAHOR, MA**, was a doctor student candidate on Faculty of Social Sciences, University of Ljubljana and worked as a researcher and a teaching assistant at the same Faculty. Her research work is focused on green political theory, democracy and sustainable development. In recent years she cooperated in two projects. In the first, Professional training for professionals in education in the field of social and civic competences, she gave lectures and performed workshops on sustainability, ecology and democracy in numerous different groups of teachers all around Slovenia. In the second project – Citizen(ship) in the new age: citizenship education in multicultural and globalized world, she performed researches about topics within citizenship education and researched new pedagogical methods and tools in topics related to citizenship, democracy and environment.

**e-mail:** maja.bahor1@guest.arnes.si

**† TONI PUSTOVRH, Ph.D.**, was a researcher and Assistant Professor at the Faculty of Social Sciences, University of Ljubljana. He was also Head of the Slovenian unit of the international UNESCO Chair of Bioethics. He thought a course on Qualitative Research Methods. His research interests included the ethical, legal and societal aspects of new and emerging technologies, the impact of digital technologies on work and workplaces, the concept of human enhancement, bioethics and neuroethics, the role of ethics in technology and policymaking, the governance of science and technology, science popularization and communication, expert institutions in the process of science and technology policymaking, and innovation systems. He had participated in various national projects and in international projects such as EPOCH, SYNENERGENE and ROTENA. He had published in journals such as Social Ecology, Nanoethics, Neuroethics and Interdisciplinary Description of Complex Systems. He was a frequent commentator and interviewee in newspapers, on TV and radio.

**JERNEJA BRUMEN, MA**, is PhD Candidate at the Interdisciplinary Doctoral Programme in Environmental Protection at the University of Ljubljana. In 2014 she finished Master study programme Political science – political theory with the thesis The Meaning of Hannah Arendt's Difference between Acting and Thinking for the Understanding of Political Theory at the Faculty of Social Sciences, University of Ljubljana. She works as a young researcher at the Slovenian Institute of Migration at the Scientific Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU). As a researcher she is interested in Hannah Arendt's political theory, history of environmental thought, understanding of environmental phenomena and during last time especially environmental migration.

**e-mail:** jbrumen@zrc-sazu.si

## Contents

Andrej A. LUKŠIČ <b>INTRODUCTION</b> .....	1
Andrej A. LUKŠIČ, Maja BAHOR <b>GREEN POLITICAL THEORY AND CITIZENSHIP</b> .....	3
Andrej A. LUKŠIČ, Maja BAHOR <b>GREEN POLITICAL THOUGHT AND DEMOCRACY</b> .....	22
Andrej A. LUKŠIČ <b>ECOLOGY, LOW-CARBON SOCIETY AND POLITICS</b> .....	35
Jerneja BRUMEN <b>REALISATION OF THE PRINCIPLE OF PUBLIC PARTICIPATION IN THE WATER GOVERNANCE IN THE REPUBLIC OF SLOVENIA: HOW TO GOVERN COMMON WATER RESOURCES?</b> .....	52
Toni PUSTOVRH, Andrej A. LUKŠIČ <b>RISK TECHNOLOGIES AND CONTEMPORARY SOCIETAL CHALLENGES: GEOENGINEERING IN THE RISK SOCIETY</b> .....	69
Tomislav TKALEC, Andrej A. LUKŠIČ <b>ENERGY TRANSITION AND BARRIERS TO ITS INTRODUCTION</b> .....	96
Aleksandar ŠOBOT, Andrej A. LUKŠIČ <b>THE IMPACT OF EUROPEANISATION ON THE NATURE PROTECTION SYSTEM OF SLOVENIA: EXAMPLE OF THE ESTABLISHMENT OF MULTI-LEVEL GOVERNANCE SYSTEM OF PROTECTED AREAS NATURA 2000</b> .....	113
<b>THE FIRST PUBLICATION OF ARTICLES</b> .....	147

## INTRODUCTION

*Exploration of Political Ecology in Slovenia* is an e-monograph of scientific papers already published in various Slovenian and foreign journals written by PhD students at the University of Ljubljana (Maja Bahor, Toni Pustovrh, Jerneja Brumen, and Tomislav Tkalec) and the University of Nova Gorica (Aleksandar Šobot), either independently or with their mentor Andrej A. Lukšič as co-author. The papers were produced after many years of in-depth study of the theoretical literature and/or as a result of individual research efforts. The purpose of the e-monograph is two-fold: to present in one place individual works that, even though they were created over a longer period, represent, as a group effort, the first step towards the construction of a new field of scientific inquiry in Slovenia, i.e. *political* ecology, and to make the

individual works more easily accessible to the general and expert public at home and abroad.

Whereas the production of scientific papers and books on ecology – as practiced by the natural sciences, social sciences, technical disciplines, and humanities – has been the result of particular impulses and more or less successful research groups focused on policy, even this rudimentary foundation is missing when it comes to political ecology, an area that has been constantly starved of financial and human resources over the past 25 years.

We believe that by publishing this monograph we are ascending to a new level of bringing together various forms of mental potential, from individualized volunteer action primarily for the purposes of doctoral studies and research, to the collective, deliberate, and targeted construction of a political ecology firmly rooted in the political sciences. And in doing so, we hope that it will become easier for such political-ecological action, which is by design aimed at addressing the existential issues of the present-day global community, to garner public, social, and political recognition.

Bearing in mind that even in countries that have focused on this subject for longer and better than Slovenia the field of political ecology has not been finally delineated, and that meanings continue to evolve and approaches multiply, this monograph nevertheless provides insight into the scope of the issues and approaches that

we can deem to be the beginning of systematic inquiry in this field, with an emphasis on polity.

The papers by Maja Bahor and Andrej A. Lukšič entitled *Green Political Theory and Citizenship* and *Green Political Thought and Democracy* set the framework for the mental space of political ecology as understood by the authors of this monograph by providing a new view on basic notions of the political sciences, including citizenship and democracy.

*Ecology, Low-carbon Society and Politics* by Andrej A. Lukšič problematizes the thesis that technological development is a precondition for new economic momentum, and that this concept also clearly establishes a hierarchy among different sciences and technologies, relegating the social sciences to merely a secondary role, a role in which the production of knowledge must be embedded in the reproduction of the existing political-economic order.

In *Realisation of The Principle of Public Participation in Water Governance in the Republic of Slovenia: How to Govern Common Water Resources?*, Jerneja Brumen advocates recognizing the importance of public participation in the field of water governance in the Republic of Slovenia.

The paper by Toni Pustovrh and Andrej A. Lukšič entitled *Risk Technologies and Contemporary Societal Challenges: Geoengineering in the Risk Society* likewise deals with technology, whereby geoengineering is defined as the large-scale engineering of the environment with the

aim of counteracting the effects of changes in atmospheric chemistry in the context of the risk society, and as a technological attempt to solve contemporary problems that are at least partly of socio-cultural and not merely technical or natural origin.

The next paper, *Energy Transition and Barriers to its Introduction*, by Tomislav Tkalec and Andrej A. Lukšič, deals with the energy sector, new technologies, and the requisite political and other changes that the strongest players in the energy arena are mounting strong resistance to.

The final paper by Aleksandar Šobot and Andrej A. Lukšič, entitled *The Impact of Europeanization on the Nature Protection System of Slovenia: The Example of the Establishment of a Multi-Level Governance System for Protected Natura 2000 Areas* is a classic political science text in that it reconstructs the creation of the polity in Slovenia driven by Europeanization and the introduction of the Natura 2000 regime.

The e-monograph is in English in the hope that these scientific works created in Slovenia and dealing with local, Slovenian issues will also reverberate in expert circles that do not speak Slovenian. It is moreover intended as a resource for graduate and doctoral students.

Assoc. Prof. Andrej A. LUKŠIČ, PhD

Ljubljana, July 2017

Assoc. Prof. Andrej A. LUKŠIČ, PhD  
Maja BAHOR, MA

## GREEN POLITICAL THEORY AND CITIZENSHIP

**Abstract:** The authors discuss some ecological challenges facing mainstream political theory today on both a descriptive as well as normative level. They identify the key points of divergence between green political theory and mainstream political theory; then they raise a number of important concepts (i.e., “political”, “political community”, “justice”, “sustainability”, “intergenerational solidarity”, and “democracy”) that are subject to reinterpretation in green political theory as a result of the introduction of the new key concept of “natural condition”. In conclusion, the authors focus on the question of citizenship in the understanding of different ideological traditions of mainstream political theory by confronting it with the emerging concept of green citizenship.

**Keywords:** political theory, green political theory, environmentalism, ecologism, citizenship, political community.

## INTRODUCTION

The understanding of political theory within political science has had a rich history over the last sixty years. Although political theory had been allocated a place in political science immediately after the Second World War by German political philosopher Franz Neumann (1992: 234), especially as regards disclosing the partial interests hidden under the cover of common interest – which was an important precondition to the building and strengthening of democracy in the process of the denazification of West Germany, a few decades later (before the end of seventies) it was nevertheless commonly believed among political scientists that political theory was utter nonsense. As we know, in the eighties attitudes towards political theory in political science started to change once again; at that time the new political reality needed to be conceptually grasped and possible further developments for the future had to be outlined.

In this spirit, political theory was defined by David Miller in 1987 as systematic reflection on government and its nature and purpose, and he focused on an understanding of the functioning of political institutions and how they could be changed, if necessary at all. His definition provided political theory with a normative dimension, namely the introduction of the categories “ought to” and “is”, i.e., the aspect of what it is and the aspect of what ought it to be. However, such a definition is too narrow and

restrictive; the subject of political science is confined to institutions (polity), but policies and politics must be included as its subject as well.

In the mid-nineties, these shortcomings in the definition were supplemented by Isaiah Berlin with the definition that “... political theory discloses or uses the moral notions in the sphere of political relations” (Marsh and Stoker, 1995: 21).

In this way, political theory in political science gained new dimensions as a result of the integration of Miller’s call for normative political theory, on the one hand, and Berliner’s call for the use of normative theory in the sphere of political relationships, on the other. Such a reconstruction of political theory within political science was confronted by environmentalism in the next step and the design and construction of green political theory was inevitable.

Andrew Dobson (2000: 212) identified some differences between mainstream political theory in political science and environmentalism, but above all he realized where the first is insufficient, what it excludes and does not take into consideration, and as a consequence it is not able to say anything. A new “expanded” subject of theoretical reflection was created; the terrain of green political theory was established by eliminating certain elements of mainstream political theory.

## **POINTS OF DIVERGENCE WITH MAINSTREAM POLITICAL THEORY**

Throughout his implicit critique of mainstream political theory, Dobson came to significant conclusions with regard to industrialization and the role of science and its self-understanding, about the self and its separation from the natural conditions of its existence, as well as about the understanding of the social contract, citizenship, and the political community.

### **Industrialization and science**

In mainstream political theory, industrialization, as a phase of development of capitalist society, and its consequences, as well as science and its integration into industrialization, are understood as benign (friendly); in contrast, for environmentalist, “mechanistic” science is the source of all environmental issues and problems.

Environmentalists are convinced that its instrumental relationship to the natural world, whereby nature is perceived as a laboratory for experimentation or as an infinite repository of natural resources, entails a reductionist understanding of nature or the natural world.

The first problem of such an understanding is bound to cognition; in its perceptual field, this understanding is not able to include effects that emerge as a result of its functioning in the natural world. Therefore, these effects cannot be understood otherwise than as a



desired continuum – not as desired effects; it is necessary to confront undesired effects in the sense that new technical devices are invented and/or new, appropriate technological solutions are found to help eliminate or at least reduce the undesired effects (e.g., cleaning devices of all types), or open up new possibilities (new technologies) that would be understood as “more acceptable solutions” for the natural world up until when their undesirable side effects (nanotechnology, etc.) are detected. And so the endless circle of the continuous creative search for “new technological capabilities and economic opportunities” is created.

And here, for environmentalist, another problem is embedded related to the conceptual limitations of mechanistic science; namely that in attempting to solve environmental problems mechanistic science is again and again confronted with the fact that it simultaneously produces environmental problems at some other level.

In some way, the natural world has been capable of neutralizing the undesired effects due to its self-regulatory power. But we can imagine the moment – and some experience of humanity already points in this direction (for example accidents in nuclear facilities) – when there occur such dramatic dimensions of undesired effects that the natural world will no longer be able to “neutralize” them itself. And then it could happen that such events will change or even destroy the natural assumption

to such an extent that it and continued human existence or other existing forms of life on earth can no longer be maintained.

Environmentalists also value industrialization differently than the mainstream of political theory; they are confident that industry only follows its own purpose and aims, namely profit maximization, and it does not even look at the individual, mankind, nature, the natural world, nor even the damage caused thereto.

Regardless of the critical view of industrialization and “mechanistic” science, environmentalists are not *a priori* against industrialization or the application of the findings of science in general. Their expectations go toward creating a new balance between humanity and nature, in the sense of understanding that that should be the focus of attention at both poles at the same time, the human and natural worlds, along with reconsideration of the value of both and their importance in this relationship.

In order to share that view of “mechanistic” science and industrialization, a suitable starting point was prepared for a conceptual turn that resulted in green political theory in relation to mainstream political theory.

## Self

Another assumption of mainstream political theory that has become a focus of criticism of green political theory is the understanding of the self.

In constructing normative rules, “I” is understood as isolated, separate from the rest, so it is not “embedded” and therefore absolutely free, meaning that in constituting normative rules there is no need to look at the conditions that “I” make possible; “I” is produced by the rest, by the environmental part of that which is.

The first critics of this assumption were communitarian political theorists who insisted on the thesis that the self is constituted partially by the community in which “I” is embedded and it belongs to; this entails forming normative rules these conditions should take into consideration.

Green political theorists embraced this thesis and upgraded it in the sense that self is not “embedded” only in the human community, but also in the biological and abiotic environment; all this is perceived as ecological, and not only as a cultural community or as a natural environment.

The double embedding of self<sup>1</sup>, i.e., in both the cultural community and the natural environment, by green political theorist represents a major shift away from the concept of an isolated individual by which mainstream political theory swears.

---

<sup>1</sup> A very deep liberal understanding of the individual as an isolated individual is reflected by Mark Mattern in his work *Putting Ideas to Work: A Practical Introduction to Political Thought*, 2006, on pages 23-57.

## Citizenship

From here it is only a step away from a different understanding of citizenship. The mainstream of political theory understands citizenship as ensuring rights within the boundaries of a political territory, such as the state is. This territorial limitation is problematized and the idea of civic responsibility and civil rights is rehabilitated by green political theory. It suggests that environmental responsibility should be recognized in the context of the silent abandonment of spatial and temporal limitations.<sup>2</sup>

## Social contract and contractual idiom

The next point of distinction refers to the understanding of the social contract. The nature of the social contract is understood as “contractual arrangements of political relations”, by mainstream political theory; this entails that “rights and obligations derive from contractual obligations” that are either real or hypothetical.

Green political theory advocates the idea that all political obligations cannot be expressed in contractual form; there are certain political commitments that need to be formulated as non-contractual, or even non-rational. This refers to the political commitments undertaken by the current generation of the human species to the “vulnerable other” (e.g., the forthcoming

---

<sup>2</sup> More about citizenship can be found in the last part of the text.

generations of the human species and other species of living beings); these commitments cannot be properly formulated in the idiom of contracts. In other words, the insistence of political theory on the contract idiom disenables the current generation of the human species to take on political obligations to the “vulnerable other”; the “vulnerable other” is already excluded at the level of thought and the discursive level, and so it is prevented from becoming the subject of public consideration by the generation that lives “here and now”. This shift in the understanding of the social contract has important implications also for the ethical stance of the current generation.

### Moral level

Green political theory also touches upon a redefinition of the ground of morality. A series of standard hypotheses about the natural world and about the need for an expanded political community have already been significantly degraded by the current environmental policy.

This ranks it in the circle of those intentions that seek a “remoralizing of political life”, which entails that activities that have been undertaken, and takes into account also other reasons especially those not only on the moral but also on the precautionary-opportunistic level.

Dobson finds a unique point of distinction between environmentalism and ecologism and all other political ideologies; he posits that the

moral dimension is important in human activities. Thus, this dimension becomes part ideological reflection; the general intention is to reveal the current instrumentality of the relationship to the “other”, i.e., nature, and to understand this relationship in a non-discriminatory way – considering the fact that nature is put to use by humans, but not only by them. Therefore, green political theory placed the “inhuman world” on the moral level; it is placed within the principle of “moral extensionism” – by this the natural world, or part of it, obtains morally valid characteristics – or with the principle of “irrationality”, in essence, this is a reference to concern, sympathy, or even apprehensiveness toward the “other”.

The marginalized inhuman world has been brought to the fore of reflection by environmentalism; this has important implications for the reconceptualization of political theory at both the descriptive as well as normative levels.<sup>3</sup>

## NEW CHALLENGES FOR POLITICAL THEORY

### Challenges at the descriptive level

If you concur with the implications brought by environmentalism to political theory, which is merely descriptive by nature, it should be noted that these are already extremely important; by the perceptual field, we describe the form of the

---

<sup>3</sup> More about this problem of division can be read in Political Theory, Political Science, and Politics by Grant, Ruth W. (2002).

description, which determines the nature and therefore the importance of the implications for political theory.

For political theorists, we can say in general that they do not take into account the empirical world in their theorizing, which causes them to have a series of problems, which is socially dangerous as well, states Dobson (2000: 213). If it does not take into account the empirical world, political theory does not fulfill the necessary conditions to be able to operate in the direction of changing it, with the first condition for changing the world being to understand the empirical world.<sup>4</sup>

In addressing the implications that describing our relation to the inhuman natural world has on political theory we will first focus on what is common to most descriptions, i.e., on the relationship of human beings in a network of dependency.

Environmentalists generally accept the scientific ideas of ecology; it defines organisms both through their individual qualities (to define their essence) and through their relation to other organisms and groups of organisms in a particular area. In the network of the interdependency of organisms there exists a series of limitations that must be accepted also by human beings and humankind as a whole.

---

<sup>4</sup> With this thesis, Dobson is embedded among those political theorists who believe that political theory that is only normative does not have the potential to change existence, i.e., it is in the service of maintaining the status quo.

Environmentalism offers a variety of descriptions of the physical circumstances that must be perceived as the limits of human activity; this variety also entails the limitations on all human projects. Dobson mentions two types of physical circumstances: geographical circumstances, which Jean-Jacques Rousseau had in mind when he spoke about the importance of the appropriate geographical conditions for an ideal polity, and the generalized physical framework<sup>5</sup> within which any human project must be implemented or any polity operated.

The common message of environmentalists' works is that we must recognize that planet Earth is limited both in terms of its capacity to ensure non-renewable resources and its capacity to absorb waste and emissions, as the by-products of production processes. At different levels (global, international, national, regional, local) and within different public spheres (professional, political, public) and within different sectors (energy, oil, gas, etc.) intensive discussions have been ongoing for many years that strive to determine where these limits are set by the natural world. In these discussions, some still insist on the idea that these restrictions do not even exist, while others believe that the end of carbon-based civilization is already on the horizon and approaching rapidly (Dryzek: 2005, 2012).

---

<sup>5</sup> An aspect of this physical framework was first publicly exposed in the report entitled "The Limits to Growth Report" in 1972 and again in 1992 with the book "Beyond the Limits".

Notwithstanding the diversity of opinions and views, the environmentalists' message must be accepted; it is necessary to oppose any political project that does not take into account the physical preconditions for its production and reproduction. To put this another way, every political project must ensure that it maintains at least those preconditions which due to failure or conceptual errors regarding their conservation can lead to the premature termination of the project, i.e., to its end already in a vital stage of its expected life.

Does a description of the physical environment – thus, what it is – already ensure what it should be, i.e., does the description itself already include the dimension of prescription?

Green theorists offer various answers to this question. As perhaps the most notable proponents of the thesis Dobson mentions Keekok Lee, who develops this thesis in his work *Social Philosophy and Ecological Scarcity* (1989), and Freya Mathews, who in her work *The Ecological Self* (1991) took a similar position as Lee. Dobson notes that both Lee and Mathews developed argumentation from which it is obvious that our understanding of the physical and ontological environment also requires a prescriptive dimension. Dobson adopts this thesis and transfers it to the context of political theory by determining that “the legitimacy of many green prescriptions is explicitly derived from the persuasiveness of green descriptions” (Dobson, 2000: 213); this

entails that green descriptions already have an integrated prescriptive dimension. Even if we do not agree and reject their (i.e., that of Keekok Lee and Freya Mathews) line of argumentation, we would have problems rejecting their idea about the prescriptive implications arising out of environmental descriptions. The thoughts of Martin Ryle (1988) also go in this direction when he writes that ecological constraints may limit policy choices but not determine them. Dobson slightly transforms the thesis of Martin Ryle and states that it seems that the argument that “some sorts of polity will be more conducive to living within ecological limits than others” (*ibid.*) is equally persuasive and he refers to Robyn Eckersley, who argues in the book *Environmentalism and Political Theory* that democratic regimes are more suitable for sustainable living than authoritarian ones; this thesis is adopted by other theorists as well (Dryzek, 1990, 1992; Paehlke, 1988).

Environmentalists introduced the old notion of “nature” or “natural condition”<sup>6</sup> into the

---

<sup>6</sup> The adjective “natural” has been used in the history of political theory in different ways, and none of them are a perfect synonym for “natural condition”. For example, the concept of “natural” as Aristotle understood it in the context of politics: it is “natural” for human beings. This meaning of “natural” is not the same as in the idea of “natural condition”, argues Dobson (2000: 214), who adds that in green theory politics is something “artificial”, and has been understood as such since Hobbes on. Furthermore, the “natural” in “natural condition” is also not derived from the same meaning as “human nature”. Environmentalists talk surprisingly little about the behavioral impulses of human beings, which usually refer to the concept of “human nature”, argues Dobson.



discussion and understand it as a relational condition or as a relationship of dependency. “Natural condition” is conceived as the relationship of man with the non-human world; it is the world on which human existence depends in general. This is not just one of the possible worlds that would be left to the free choice of man and that should or should not be selected; it is the world that is a simple biological necessity, the natural condition, as the limit that must be adopted by man as a natural being. The term “natural condition” is non-transcendable and it is the framework, which is non-negotiable or subject to choice, within which political projects must be formulated as well. As such, it presents a series of limitations that must be taken into account, although it does not have the power to definitively determine political projects. With the modification initiated by environmentalism through exposure to the natural circumstances and the preconditions for human existence, each political activity is committed to ensuring the framework of political prescription, which will also include the natural conditions.

With this impulse political theory gains an emphasized naturalistic dimension, which even leads to the discontinuation of the mediation of prescription by mainstream political theory.

### Challenges at the normative level

Environmentalism has made an important contribution to political theory at the normative

level and encourages the use of its normative dimension in the sphere of political relationships.

A number of important concepts have been subject to reinterpretation and below it will be shown how the concept of “natural condition” stimulated new reflections on the “political”, “political community”, “justice”, “sustainability”, “intergenerational solidarity”, and “democracy”.

Firstly, the concept of the political was under intense pressure from feminist theory, which provoked its reinterpretation with the short phrase “the personal is political”. This short phrase had such explosive power that the concept of “political relations” expanded enormously and no political theorist is able to create “original” political theory if he or she does not think about the implications of this innovation. If the political hitherto meant the primary public activities of people, feminist discovery forces one to take into consideration another, non-public aspect, i.e., the private aspect of human existence, and for the political this is at least as important as an analysis of the distribution of political power.

Another impulse to extend the concept of the political has come from environmentalism, which introduced the concept of the “natural condition”, by which the non-human natural world becomes the center of attention and an important facet of reflection. By in political theory this concept paved the way for the old insight that the non-human natural world,

“man’s inorganic body” (Marx), is of utmost importance to humans.

The penetration of this old insight in political theory occurred just when society as a whole started to perceive as vulnerable and fragile the previously taken for granted “life support” system of nature, and it became such mainly due to the impact of human activity. Since then, the environment has been the subject of specific public policy.

Representatives of political ecology made the third significant shift in the understanding of the concept of the political by recognizing and integrating the non-human natural world or part of it into the moral community. In such a way, certain parts of the human and the non-human world were involved in political relations. This means that prescriptions made for the political arrangements of human life must be compatible with the needs and must take into account the interests of the relevant parts of the non-human world. Expanding the moral community to include the relevant non-human world starts with a minimum request for the inclusion of “normal mammalian animals age one or more” (Regan, 1988: 81) and ends with the maximum request of James Lovelock, who includes in this community even all of so-called “Gaia” (Lovelock, 1979).

This expansion of the concept of the political community not only has the usual consequences for political theory in the sense that it would

be possible, for example, just to add something to an existing theoretical vocabulary, but the nature of these innovations is also much more radical and therefore constitutes a much more dramatic intervention into political theory.

Dobson argues that the new concepts of democracy, equality, freedom, and justice can no longer be corrected only through skillful mental magical tricks, but they should be thought of in the context of an “enlarged political community”, and if we do so, the effects are much more radical.

Ecological movements advocate justice at least for some animals; this entails that parts of the non-human world are recognized as being legitimate holders of rights,<sup>7</sup> of which they can no longer be deprived. These rights must somehow be embedded in an existing space of aspirations, extended, and become part of justice among human beings.

In pointing out a more general aspect of this standpoint and forming a general rule, which will as such be important for political theory as a whole, we can say that “no prescriptive arrangement can be considered adequate unless the whole political community – relevant parts of the non-human natural world too – is included in it” (Dobson, 2000: 221).

The stronger intrusion of these findings into the theoretical practice of mainstream political

---

<sup>7</sup> In this sense, “natural relations” are also relations of justice, as alleged by Ted Benton (1993).

science – despite the perceived subjective reluctance<sup>8</sup> to accept these insights – will be ensured by the facts themselves. For example, the attention of mainstream political theory is attracted by environmental agendas, which seemingly remained outside the interest of the ecological movement, or by the agendas that directly affect only human affairs. Also sustainability and sustainable development, in their anthropocentric versions, have therefore been impressive enough for them to be taken seriously, at least as regards their implications. So the greens started thinking about the issue of international justice, the workings of potential conflicts between the procedural politics of liberalism and democracy, and the necessity of achieving solutions thereto.

In this context, it is also possible to ask a very provocative question, namely whether the processes of liberalism and democracy produce the desired results as regards sustainability. And if the answer is no – then whether different policies that are reasonably justified and potentially better at achieving the

desired objectives are acceptable.<sup>9</sup> However, a certain long-term aspect of sustainability has been attracting significant attention from mainstream political theorists; it seems more relevant than some “frivolous” suggestions of environmental ethics. It is namely the fate of the future generations of humankind. The question of future generations and the functioning of the current generation, which is now creating the conditions for their existence, is a political question invented by environmentalist; they put it on the political agenda with the concept of sustainability, after considering the issue of the conditions of human existence.<sup>10</sup> Among all the topics being developed by environmentalists, the needs of future generations have the greatest influence on the theoreticians of various profiles, particularly theorists of justice. Intergenerational justice is an idea that has engaged the defenders of traditional theory of justice; all of this is discussed by Dobson in his works “Justice and the Environment” (1998) and “Green Political Thought” (1999).

---

<sup>8</sup> Dobson had no great illusions concerning the broad integration of these insights into political theory. It can be expected that only those political theorists who are open to green ideas and an expanded political community will take this issue seriously, which includes biological elements (sometimes non-biological elements) as the basis for their further theoretical practices. Meanwhile, the other political theorists should be convinced at least that a part of the non-human natural world will be accepted into their theorizing – and only then can we hope to arrive at a wider acceptability of at least the most important parts of these positions.

---

<sup>9</sup> These questions carefully open up the horizon beyond the current political regime, namely, first, all the possible potentials within the liberal-democratic paradigm have been considered, and then solutions have been sought outside of it, but only so that the desired objectives would be possible to achieve. This question was raised in 1996 by Lafferty and Meadowcroft and also by Doherty and de Gues.

<sup>10</sup> Dobson was surprised how this fact had garnered little attention up to now; this basic feature of the human condition has not become the theme of the political theorists’ thinking.



His basic idea is that political theories dealing with distributive issues are not complete if they do not include the idea of future generations.

The idea of democracy and especially the electoral system on which representative democracy stands or falls are continually at the center of discussions with the intention of implementing fairer representation, and therefore several of the proposals on the reform of the electoral system<sup>11</sup> that would allow all this. In these discussions, surprisingly little attention is devoted to the question of what the under-representation of interests means. Regardless of the gap mentioned in the discussion of under-representation, local interests (e.g., in the UK) should be included as well as the interests of future generations.

Regarding the interests of future generations, Dobson (2000: 222) concludes in this direction: first, there is no doubt that the future generations of the human species will have their own interests, even we do not currently know what a given generation will be or who will be involved therein; secondly, we also know clearly that what we do today will have an impact on their interests. Dobson concludes by noting that this should be communicated to

---

<sup>11</sup> In the UK, the discussion on this topic was initiated years ago and the current rule of “winner takes all” was challenged by a proposal in favour of proportional representation. Under this proposal, under-represented local interests would also gain seats in the national parliament. The same topic has been discussed in Slovenia for many years in order to find a way out of “system blockage”.

the current generation of humans; this would be a good basis for deriving arguments in favour of the introduction of the democratic representation of the interests of future generations; which in the case of the UK entails that reasonably justified local interests and the interests of future generations should gain a place in revised election regulations.

A general principle or criterion is also derived from these observations when Dobson says that the theory of democracy could no longer be understood as complete unless and until it takes into account the interests of the future generations of the humans.

## **AN EXAMPLE OF REDEFINING CITIZENSHIP**

The traditional concept of citizenship as the relationship between the state and individuals that has been thematized by mainstream political theory is just one dimension of citizenship. Faulks’s work *Citizenship* (2000) reminds us of the evolving postmodern theory of citizenship. His consideration is embedded in the tradition of postliberal thinking; this entails that rights – attributed great importance by the author – must be rooted in the network of responsibilities between individuals and their communities.

The postliberal understanding of citizenship highlights various relationships and the non-hierarchical character of citizenship; individuals have both physical and emotional needs and

therefore citizenship should be imagined in terms of values, such as interdependence and care (Faulks, 2000: 164-5); these values, argue writers on Green political theory, should be above human needs: people must be aware of their obligations to the environment, other species, and future generations.

It is precisely in the social changes of the modern world, especially in the age of globalization, that we need to find a new opportunity for the development of postmodern citizenship as proposed by Faulks (2000: 168) in the face of global threats. Global risks provoked Hobbes's understanding of security and social order, which must be provided by the state, as they undermine the ability of states to ensure the safety of their citizens. Political institutions and rights and duties should be extended beyond the state, argue theorists of cosmopolitan democracy (Held, 1995), if we as humans do not want to destroy the foundation of human society with ecological disasters and nuclear accidents.

Faulks's (2000: 170) postmodern citizenship understands all human relationships, both public and private, through rights and duties. In this sense, his theory is faced with ecological challenges; when the risk of a global ecological catastrophe increases, citizenship needs to be sensitive to the needs of the environment, which cannot be separated from the needs of the citizen. The positioning of ecological challenges

in a political framework has conceptual consequences for the old conception of modern citizenship which should be considered by political ecology (ecologism).

Dobson (2006: 216) deems that in the context of political ecology a redefinition of citizenship can proceed in many divergent directions. First of all, it is a discursive challenge; citizenship has always been present in the discursive space of modern politics. It defines who or what is qualified to be a member of the "political community", what counts as "political", as well as the rights and duties arising therefrom.

Usually, we have in our mind two approaches considering citizenship: the liberal and the republican approaches. In principle, they differ as to how they define nature and the balance between civil rights and duties. In the context of ecological challenges, it raises the question of how they deal with the challenges of the environmental dimension of political life.

### **Liberal (environmental) citizenship and political ecology**

The combination of liberalism with green politics is manifested in liberal (environmental) citizenship and political ecology. Within this approach, environmental citizenship can be institutionalized by the reform of legislation in terms of adding the environmental dimension to existing civil, political, and social rights, the holder of which is an individual citizen, and by

the reform of political processes based on the right to participate.

In the liberal approach, Dobson claims (2006: 219), environmental politics is expressed through the language of rights; it is included in the canon of liberal citizenship in several ways: from the right to a 'for-life-still-possible' environment to the right to a more sustainable environment – similar, but deeper than the first variant; it is a necessary condition for the enjoyment of all others civil, political, and social rights; without it (for a life-still-possible environment) other formal rights cannot be fully enjoyed, as political ecologists argue.

With the possibility that the environment receives a status with certain rights, an overlooked common assumption is problematized, at first sight both the liberal and republican understanding of citizenship, namely that citizenship and the pertaining rights are limited to humans.

So we can say that the ecological challenge extends the question of who or what is eligible for citizenship (Dobson, 2006: 220); in discussions on liberal or republican citizenship the qualifications required for membership in the body of citizens are questioned, but these discussions have no ontological dimension – they do not include the ecological challenge.

Citizenship is defined as a legal status which is justified on the basis of substantive and procedural rights enshrined in constitutions

and laws, and other normative acts such as the Aarhus Convention adopted in 1998.

Such attempts at normative acts increasing the participation of citizens in decision-making pertaining to the environment fall within the field of green citizenship.

But such a way of promoting green citizenship or political participation has been encountering some difficulties; the motivation and financial ability of citizens to exercise their right to participate, as well as social injustice and inequality, constitute serious obstacles to the realization of citizens' rights. In fact, only a small number of citizens are in a position to make decisions in the spirit of sustainability.

In addition, the right to information, participation, and justice that are laid down, for example in the Aarhus Convention, are procedural, rather than substantive, which entails that justice only applies to procedures, but not to the outcome of the procedures (Melo-Escribuela, 2008: 119). Such an approach, however, does not necessarily lead towards greater social inclusion or social justice.

In principle, adding environmental rights to the list of liberal citizenship is not disputed, but that is everything that liberal citizenship can do when faced with ecological challenges; it can only expand the field of rights of people and non-human nature remains without any environmental rights, it is not entitled to rights, therefore it discriminates against non-human nature.

Furthermore, this approach based on rights puts great emphasis on individuals who have problems (limited time, few financial resources, low motivation), which are an obstacle to the realization of the right to participate, but it neglects the collective aspect of the behavior of individuals.

A further difficulty of environmental liberal citizenship is linked to the national territory: it is exercised exclusively in the public sphere, focuses only on the environment, and does not take into consideration the socio-political and economic aspects of the ecological challenge.

### **Republican (environmental) citizenship and political ecology**

Three characteristics of republican citizenship resonate loudly with the impulses of political ecology: a focus on the common good, an emphasis on political virtues, and the idea of the active citizen. This approach refers to the individual responsibility of the citizen; his or her duties and obligations are global and originate in moral and political responsibility to non-human nature, to other citizens, and to the future generations.

“Environment” is perceived as a public good, on which we all depend for the production and reproduction of daily life. All of our interests depend on the environment, on the resources that maintain life and ensure a healthy and sustainable environment also for

future generations; so it is necessary to ensure sustainability to all. Where the interests of the individual citizen do not coincide with the interests of the common good, the latter has the priority; so citizens have a duty and obligation to think about the common good when deciding.

Green politics calls on citizens to connect their lifestyles with the consequences that such lifestyles have on the natural world – the people are responsible for the state of the environment and therefore they are encouraged and directed to do something good for it (Dobson, 2006: 222).

Even sacrifice is common to both: in the case of republicanism, the citizen sacrifices him- or herself for the republic, while in the case of political ecology the citizen sacrifices his or her desires and (material) wishes to the benefit of environmental sustainability. For republicanism, virtues are related to improving the conditions of the republic, while for political ecology, values are a means of achieving environmental sustainability. There is the republican story that is full of virtues such as courage, sacrifice, and strength, and then there are theories of ecological citizenship that talk about caring and compassion, but both of them see virtue as a key element of citizenship (Dobson, 2006: 224). Theories of republican environmental citizenship assume that sustainability can be achieved by combining the good acts of individuals. Therefore, citizens are viewed as the main agents of social and environmental change; they are asked to do

something for the environment, namely to abandon ecology and convenience and to make changes in their personal lifestyles and thus to reduce their impact on the environment. Self-discipline becomes a public virtue, so selfish and irresponsible citizens represent the only source of environmental problems. The focus is on the citizen – instead of on the complex structural processes that connect individuals and institutions in very different social and geographical situations. This line of thought ends with a very risky idea: in the end, green themes are de-politicized and privatized, being outside of the political field (Melo-Escrihuela, 2008: 122).

The third characteristic in both views is the vision of the active citizen. Republicanism is connected with the idea of politics as participation and is the heir to the classical Aristotelian view, namely those who do not participate in the public life of the community do not fulfill their human potential; on the other hand, green politics has a strong 'local' impulse – even if we think globally, we act locally, and only the local forms of communication and decision-making processes ensure the right participation (Dobson, 2006: 224), and not a hollowed-out form of states with liberal representative democracy.

While the concepts of liberal and republican citizenship as parts of mainstream political theory refer to the membership of the state as the archetypal space of modern citizenship,

where citizenship activities take place only in the public sphere (Dobson, 2006: 225), the concept of ecological citizenship originates from green political thought, which asks whether the political space of citizenship limited by the state and the corresponding parts thereof may have already been exceeded.

### **Ecological citizenship and political ecology**

Ecological citizenship extends beyond the territorial border of the state and covers both the private and public spheres. The ecological citizen works for the common good, which in ecological discourse can be called "environmental sustainability". Ecological politics is an everyday politics, covering the everyday relations between individuals, between individuals and non-human nature, and participatory relationships in "public" institutions.

All the time we are consumers of environmental services and waste producers, from birth to death, in public and private life. From this point of view, it is unacceptable to look at a campaign for a recycling center as an act of the citizen, and waste separation in the privacy of the home as a private act. The ecological challenge requires that both activities be viewed as acts of citizens (Dobson, 2006: 226).

The traditional conception of citizenship does not include the private sphere; citizenship is, by definition, a legal status and activities are perceived only as action in the public arena. At



this point, cosmopolitan citizenship is already confronted with a contradiction because citizenship defines rights and duties within the state or the parts thereof.

Ecological citizenship makes an important breakthrough because citizenship is perceived not only as a legal status but also as an activity (Dobson, 2006: 228); the perception of citizenship becomes a place of permanent political struggle, in which cosmopolitan and ecological challenges are also included, and the results of which undermine the belief that citizenship is possible only within the boundaries of the state.

There are several possible exits from (environmental) liberal citizenship to ecological citizenship, which are even related to each other. It is clear that economic reforms, scientific-technical progress, and changing lifestyles are not enough; the involvement of citizens in the decision-making process of life is crucial – ecological citizenship will not be brought about by the action of natural law or perhaps by heavenly cosmic law, but it must be fought for. There are several political forms of this struggle – from ecological democracy, bioregionalism, the green state, to the ecological footprint, etc. – that belong to the field of modern conceptions of citizenship, extended in accordance with the aspirations of political ecology.

Eckersley (2004) developed the concept of a green state in such a way that the existing structure of the liberal state was taken as

starting point; she transformed it, and thus elaborated the conditions for green citizenship and ecological democracy. However, Eckersley notes that this is not simply a greening of liberal democracy, but the establishment of new institutions and principles, this entails new forms of representation, new decision-making procedures, new forms of participation, and new types of decision-making processes, etc.

The potential development of democracy, in particular participative and deliberative democracy, were identified and described by Dryzek (2000, 2005). He argues that authentic communication is essential for democracy; democracy must be designed in such a manner that goes beyond barriers and eliminates shortcomings that distort and overturn such communication. One of the shortcomings with which democratic theory has not addressed up to now, but which today is highlighted by green political thought, is communication with non-human nature.

The large bureaucracy that operates more or less within the framework of standard procedures and that is insensitive to the local ecological contexts does not apply/practice authentic communication or democracy, while in bio-regional authorities, where citizens participate in government with their knowledge, which includes local characteristics and specificities, it is likely that authentic communication will occur.

Ecological democracy blurs the boundaries between human social systems and natural systems; it is a form of democracy without borders, which is very different from the institutions established in industrial society but whose priorities still predominate in today's world.

There are occasionally crises that enable the environmental dimension to be formulated and that make progress in the direction of greater democracy and/or the greening of dominant institutions (Dryzek, 2005: 235). The bioregion as a form of green life with the involvement of local preservation practices could be one of the possible new loci of participation and policy-making; this entails that the social construction of the state would be replaced with the natural configuration of ecosystems.

But today we are faced with globalization as a guiding idea and practice. The ecological response to the challenges of globalization offers a new concept – the spatial footprint; this is a spatial imaginarium in which citizenship, responsibilities, and obligations are more closely involved.

The concept of the ecological footprint was developed in order to better illustrate the different effects on the environment due to individual practices as well as the practices of the community. The concept assumes that the Earth has a limited absorption capacity, and the “permitted” footprint is measured for each inhabitant of the planet estimated within

planetary limits. Some people have a larger footprint than others, which is unfair in terms of the nominal equality of the ecological space, so the ecological footprint is a good illustration of the principle of justice, but not the spread of humanitarianism (Dobson, 2006: 230).

## CONCLUSION

The contribution of environmentalism to political theory is undeniable; it encourages us to reconsider the role that natural conditions have in normative considerations and to broaden and deepen the conceptualisation of political relations. By its nature, the effects of environmentalism are simple, but they are also far-reaching, especially in relation to interpretation of the expansion of the “sphere of political relations”.

The expansion of the perceptual field of the “sphere of political relations” goes in two directions, Dobson points out, within which (eco) political theory must namely contemplate, on the one hand, how the field spreads from human beings into non-human nature, while on the other, from the current human generation to future generations of humans.

If this is illustrated with a circle, one could say that human beings (previously they were only men) are placed in the smallest circle in the middle, then followed by ever larger concentric circles (in terms of the reinterpretation of environmentalists) covering a growing area of non-human nature

and their borders shifting due to philosophical persuasion and/or intuitive sensibility.

Added to these circles in our mind's image is also the temporal dimension, at least the dimension of the future, then greater perceptual spaces are generated and new fields of concern are created, namely the concern of the current generation for the future generations of mankind and for the future generations of non-human species; this entails ensuring their natural conditions.

The further development of the interaction between green political theory and mainstream political theory enables the direction of mutual disregard to be predicted; but it would be much more productive for green political theory to accept the heritage of political theory and to locate environmental and ecological problems in the cognitive field of mainstream political theory.

And at this time it seems that leaving the theoretical trenches and ramparts is already possible and necessary if we believe in the following sequence, namely, that thought arises from problems and precedes action.

## LITERATURE

- BENTON, TED (1993): *Natural Relations: ecology, animal rights and social justice*, London: Verso.
- BERLIN, ISAIAH (1978): *Does Political Theory Still Exist?*. In: Henry Hardy (ed.), *Concepts and Categories: Philosophical Essays*, 147–165. London: Hogarth.
- CHODOROW, NANCY (1986): *Toward a Relational Individualism: The Mediation of Self Through Psychoanalysis*. In: Thomas C. Heller (ed.), *Reconstructing Individualism: Autonomy, Individuality, and the Self in Western Thought*, 235–256. Stanford CA: Stanford University Press.
- DOBSON, ANDREW (1996): *Democratising Green Theory: Preconditions and Principles*. In: Brian Doherty and Marius de Geus (eds.), *Democracy and Green Political Thought: Sustainability, Rights and Citizenship*, 132–150. London: Routledge.
- DOBSON, ANDREW (1998): *Justice and the Environment: Conceptions of Environmental Sustainability and Dimensions of Social Justice*. Oxford: Oxford University Press.
- DOBSON, ANDREW (1999): *Green Political Thought*. London: Routledge.
- DOBSON, ANDREW (ed.) (1999): *Fairness and Futurity: Essays on Environmental Sustainability and Social Justice*. Oxford: Oxford University Press.
- DOBSON, ANDREW (2000): *Political Theory and the Environment: The Grey and the Green (and the in-between)*. In: Noel O'Sullivan (ed.), *Political Theory in Transition*, 211–224. London: Routledge.
- DOBSON, ANDREW (2003): *Citizenship and the Environment*. Oxford: Oxford University Press.
- DOBSON, ANDREW (2006): *Citizenship*. In: Andrew Dobson and Robyn Eckersley (eds.), *Political Theory and the Ecological Challenge*, 216–231. Cambridge: Cambridge University Press.
- DRYZEK, JOHN S. (1990): *Discursive Democracy: Politics, Policy and Political Science*. Cambridge: Cambridge University Press.
- DRYZEK, JOHN S. (1992): *Ecology and Discursive Democracy: Beyond Liberal Capitalism and the Administrative State*. *Capitalism, Nature, Socialism* 3 (2): 18–42.
- DRYZEK, JOHN S. (2000): *Deliberative Democracy and Beyond: Liberals, Critics, Contestations*. Oxford: Oxford University Press.
- DRYZEK, JOHN S. (2005): *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.
- ECKERSLEY, ROBYN (1992): *Environmentalism and Political Theory: Toward an Ecocentric Approach*. London: UCL Press.



- ECKERSLEY, ROBYN** (1996): *Greening liberal democracy: The rights discourse revisited*. In: Brian Doherty and Marius de Geus (eds.), *Democracy and Green Political Thought. Sustainability, Rights and Citizenship*, 212–236. London: Routledge.
- ECKERSLEY, ROBYN** (2000): *Deliberative democracy, ecological representation and risk: Towards a democracy of the affected*. In: Michael Saward (ed.), *Democratic Innovation: Deliberation, Representation and Association*, 117–132. London: Routledge.
- ECKERSLEY, ROBYN** (2004): *The Green State: Rethinking Democracy and Sovereignty*. London: MIT Press.
- FAULKS, KEITH** (2000): *Citizenship*. London: Routledge.
- GRANT, RUTH W.** (2002): *Political Theory, Political Science, and Politics*. *Political Theory* 30 (4): 577–595, <http://ptx.sagepub.com/content/30/4.toc>. (Last accessed 14 June 2017).
- HAYWARD, TIM** (2004): *Constitutional Environmental Rights*. Oxford: Oxford University Press.
- HAYWARD, TIM** (2000): *Constitutional Environmental Rights: A Case for Political Analysis*. *Political Studies* 48 (3): 558–72.
- HELD, David** (1995): *Democracy and the Global Order*. Cambridge: Polity Press.
- HORKHEIMER, MAX, AND THEODOR W. ADORNO** (2002): *Dialektika razsvetljenstva: filozofski fragmenti*. Ljubljana: Studia humanitatis.
- LAFFERTY, WILLIAM J. AND JAMES MEADOWCROFT** (eds.) (1996): *Democracy and the Environment: Problems and Prospects*. Cheltenham: Edward Elgar.
- LOVELOCK, JAMES** (1979): *Gaia*. Oxford: Oxford University Press.
- MAREGA, MILENA AND DRAGO KOS** (eds.) (2002): *Aarhuška konvencija v Sloveniji: strokovna priporočila za implementacijo Konvencije o dostopu do informacij, udeležbi javnosti pri odločanju in dostopu do pravnega varstva v okoljskih zadevah*. Ljubljana: Regionalni center za okolje za srednjo in vzhodno Evropo.
- MATTERN, MARK** (2006): *Putting ideas to work: A practical introduction to political thought*. Lattham, Boulder, New York, Toronto, Oxford: Rowman & Littlefield Publishers.
- MATHEWS, FREYA** (1991): *The Ecological Self*. London: Routledge.
- MARSH, DAVID AND GERRY STOKER** (1995): *Methods in Political Science*. Basingstoke and London: Macmillan.
- MELO-ESCRIHUELA, CARME** (2008): *Promoting Ecological Citizenship: Rights, Duties and Political Agency*. ACME: An International E-Journal for Critical Geographies 7 (2): 113–134.
- MILLER, DAVID** (1987): *The Blackwell Encyclopaedia of Political Thought*. Oxford: Blackwell.
- NEUMANN, FRANZ** (1992): *Demokratska i autoritarna država*. Zagreb: Naklada Ljevak.
- PAEHLKE, ROBERT** (1988): *Democracy, Bureaucracy, and Environmentalism*. *Environmental Ethics* 10 (4): 291–308.
- REGAN, TOM** (1988): *The Case for Animal Rights*. London: Routledge.
- RYLE, MARTIN** (1988): *Ecology and Socialism*. London: Radius.
- SCHNEEWIND, JOHN BOSWELL** (1986): *The Use of Autonomy in Ethical Theory*. In: Thomas C. Heller (ed.), *Reconstructing Individualism: Autonomy, Individuality and the Self in Western Thought*, 124–141. Stanford CA: Stanford University Press.

Assoc. Prof. Andrej A. LUKŠIČ, PhD  
Maja BAHOR, MA

## GREEN POLITICAL THOUGHT AND DEMOCRACY

**Abstract:** Authors discuss some ecological challenges facing mainstream political theory today. They identify and highlight some key points of divergence between green political theory and mainstream political theory through comprehension of industrialization, selfhood, place of non-human world in moral and political community, new notion of (green) citizenship and human-nature relationship. The green political thought introduces a concept of »natural condition«, which claims rethinking and reconceptualization of numerous political concepts (i.e. 'political', political community, justice, sustainability, citizenship, democracy, etc.). Then authors focus particularly on greening of democracy as presently understood. They explore how green democracy might differ from earlier variants of democratic theory and practice – all of which are anthropocentric to their core.

The history of democratic theory shows that democracy is a contested concept whose contents over the meaning of the concept have come from various quarters. In the understanding of democracy the recognition of the human-nature relationship is introduced by green political thinkers. Therefore they require rethinking of democracy as green democracy – ecocentric in its core, which widens the circle of whose interests are included and whose 'voices' are heard in political process. This extension to the non-human world and future generations, that means to think about dismantling what is perhaps the biggest political boundary of them all: that between the human and the non-human world.

**Key words:** deliberative democracy, democracy, environmentalism, green political theory, liberal representative democracy, mainstream political theory, natural condition.

## INTRODUCTION

Over the past three decades the landscape of political theory has been transform and transferred by the notion of ecological challenge. Numerous political theorists have engaged with the ideological, institutional, political and ethical challenges raised by the environmental agenda. This specialized engagement has emerged as green political theory, a sub-field of political theory.

The encounter between mainstream and green political theory has essentially taken two key forms. First, there has been a wide discussion on the role of environmental politics in the context of political ideologies. There have been reflections on the relationship between conservatism, liberalism, socialism, feminism, nationalism, communitarianism, cosmopolitanism, etc. and ecologism as a green ideology. Second, there has been questioning of traditional political concepts from an environmental point of view. On the one hand, there have been analyses and discussions on democracy, justice, the state and political space, representation, freedom and rights, citizenship, security etc. by demonstrating "green" possibilities within them. On the other hand environmental themes such as intergenerational and intragenerational equity, anthropocentrism vs. biocentrism, cross-boundary pollution, limits to growth, sustainability have a huge impact upon classical topics and concepts in the mainstream political theory and therefore make us think about them in different ways.

The main purpose of this article focuses on second form between mainstream and green political theory. It identifies and highlights the most obvious points of divergence between mainstream and green political thought. Mainstream political theory has never taken into the consideration what is in the core focus of green political theory, namely the human-nature relationship on the political agenda. The same applies to democracy as presently understood. Although democracy is a contested concept, whose contents over the meaning of the concept have come from various quarters, the recognition of the human-nature relationship requires the reconceptualization of democracy as green democracy.

### The points of divergence between mainstream and green political theory

Dobson (2000a: 211-2) argues that in general terms, mainstream political theory has taken five prepositions that green (or environmental)<sup>1</sup> political theory resists. These prepositions are:

- a belief in the benign consequences of industrialism;
- the self is free to construct its normative rules without reference to the conditions that make selfhood possible in the first place;
- the dominant view regarding the nature of the social bond, particularly in liberal

theory, is that political relationships (relationships in the public sphere) are contractual and that our rights and duties derive from contractual obligations;

- citizenship is understood most fundamentally as a matter of rights and duties within a defined political territory such as the state; and
- human - nature relationship is not the subject of consideration.

All five prepositions have been taken into deep consideration by green political theory.

### Industrialism

Industrialism may be characterized in terms of its overreaching commitment to growth in the quantity of goods and services produced and to make material well-being that growth brings. Modern industrial society have featured many competing ideologies, such as liberalism, conservatism, socialism, Marxism etc. but whatever their differences, all these ideologies are committed to industrialism. From an environmental perspective they all look like variations on this theme. But all these ideologies long ignored or even suppressed the human – nature relationship. As Dryzek (2005: 13) put “*if what we now call environmental issues were thought about it all, it was generally in terms of inputs to industrial processes.*”

---

<sup>1</sup> Green political theory is commonly used in Europe. In North America is usually used term environmental political theory.

For green political theorists, industrialism has been pursued for its own purpose, thus maximization of profit, no regard human or natural damage that has been done along the way. Nevertheless, environmentalists are not opposed to all aspects of industrialism, but they argue, that a new balance in the human – nature relationship needs to be accomplished (Dobson, 2000a: 211). Environmentalists cannot therefore simply take the terms of industrialism as given, but must depart from these terms. This departure, being reformist or radical has given starting-point for conceptual shift according to mainstream political theory.

### Selfhood

The preposition that self is ‘disembedded’ and free to construct its normative rules without reference to the conditions that make selfhood possible is already under attack from communitarian political theorists, who argued that the self is partly constructed by the community to which it belongs. In this light, bioregionalism provides perhaps the fullest ecological expression of eco-communitarian (Eckersley, 2006: 97). Therefore normative rules must bear this precondition point in mind. In the view of environmental political theorists, the community in which the self is embedded is the biotic and abiotic community, defined primarily in ecological and after that in cultural terms. Therefore, they are particularly critical

on the traditional liberal ontology of the self as asocial, detached and radically autonomous individuals. Moreover, many of the normative prescriptions that flow from this position of the self neglect or even undermine the importance of belonging to ecological communities. The general point is that condition for production and reproduction of the self must play a part in ontological as well as normative considerations (Dobson, 2000a: 212).

### Nature of the social bond

The dominant way in mainstream political theory is that political relationships are properly contractual, and that our rights and duties derive from contractual obligations. In green political theory we find the view that our political obligations cannot exhaustively be couched in contractual terms, and that some of them are more appropriately thought of as non-contractual. Green political theorists talk about ‘vulnerable others’ (Dobson, 2000a: 212) such as non-human nature and future generations of human beings. Therefore, they suggest that our obligations to them cannot be expressed solely in contractual form.

Green political thought places the values on the non-human nature. The notion that something has intrinsic value can consequently impose obligations in relation to it. Intrinsic value in nature it means that we cannot simply think about nature as a resource to satisfy

human wants and needs, as Rolston (1983: 191) put it “...*things are not merely to be valued for me and my kind (as resources), not even as good of my kind... but as good of their kind*”.

Among vulnerable others green political theory place also future human generations, that means the present generation has a responsibility to pass on the natural and cultural heritage to future generations. Consequently, the persistence of mainstream political theory on the dominance of the contractual obligations, prevents obligations of the present generation to take political responsibility to vulnerable others on discursive level and therefore prevents them to become a central issue in present public and political considerations. Finally, our understanding of contractual obligations has very important consequences for our appreciation of the significance of interactions between plants, animals and physical environment.

## Citizenship

Mainstream political theory has mostly understood citizenship fundamentally as a matter of rights and duties within a defined political territory, predominantly a nation state. Therefore, a traditional notion of citizenship about human relationships defines a simple, static definition that can be applied to all societies at all times. Green political theory calls this framework into question by arguing

for the rehabilitation of the idea of citizen rights, duties and responsibilities by suggesting that environmental responsibility should be regarded as requiring discharge non-specifically across time and space (Dobson, 2000a: 212).

The idea of citizenship is inherently contested, always reflecting the particular set of relationships in the given political space. Faulks (2000) developed a postmodern citizenship approach which among others incorporates the threat posed by planetary risks. In other words, global risks challenge this relationship between citizenship and the state by undermining the state's capacity to provide security to its citizens. Institutions of governance, as well as rights and responsibilities, must extend beyond the state if the very basis of human society is not to be destroyed by ecological disaster (Held, 1995).

Challenging citizenship could mean a number of things, but as Dobson (2006b: 216) argues that in the first instance it is a discursive challenge. We have to consider and answer the questions: Who or what are to be members? What counts as ‘political’? What is the nature of the space within which citizenship relations take place? What kinds of rights and responsibilities citizenship might entail?

## Human – nature relationship

The most important characteristic of green political theory is its insistence on putting the human – nature relationship on the political

agenda. Environmentalism<sup>2</sup> and ecologism are unique among political ideologies in its recognition of the high importance of this relationship, while other ideologies regard it only in instrumental terms, seeing nature as storage of resources appropriate for human use. Green political thought suggests bringing the non-human world into the moral orbit, through some kind of “moral extensionism”. Green political theorists see in the natural world (or parts of it) characteristics for moral considerability (Dobson, 2000a: 212). Namely, the idea that the planet is finite in terms of its capacity to provide renewable and non-renewable resources and to absorb the wastes from the processes of human production came into light with the publication of the *Limits to Growth* (1972) which gave a major boost to discourse of limits. Although discourse of limits met with immediate counterattack from defenders of the established industrial economy, whose taken-for-granted order of things, the discourse of limits has challenged. But most scientists from very distinctive fields have accepted the message of limits discourse. Its implications clearly tell against any political

---

<sup>2</sup> Green political thinkers take a rough distinction between environmentalism and ecologism. Dobson (2000b: 2) defines environmentalism as a managerial approach to environmental problems, secure in the belief that they can be solved without fundamental changes in present values or patterns of production and consumption. While ecologism presupposes radical changes in human relationship with the non-human natural world, and in our mode of social and political life.

project that ignores the physical preconditions for its production and reproduction. Green political theory’s insistence on highlighting the physical conditions for human existence (and therefore of political activities) obliges us to ensure that any political prescription squares with the framework provided by our *natural condition* (Dobson, 2000: 213-4).

Natural condition is understood as a *relational* condition, it is a relationship of dependency. It is imposed upon us by our relationship with the non-human natural world – a world on which we are dependent for our existence. From a political-theoretical point of view the natural condition is non-transcendable, non-negotiable framework within which we must conceive our political projects (ibid.).

Green political theory claims for reconceptualization of numerous political concepts in the light of ecological challenges. The same applies for democracy as presently understood. Green political theory is searching appropriate and new ways to include into the consideration of democracy the voices of presently unheard.

## Democracy and environmentalism

There is no logically and conceptually necessary connection between environmentalism and democracy as presently understood. On the contrary, in the early days of the contemporary environmental movement, when limits discourse has been on the rise, writers such Hardin (1968),



Heilbroner (1991) and Ophuls (1977) appeared to argue that only strong government, namely authoritarian government would be needed to deal with ecological crises. Decentralized systems, including liberal democratic political systems have no incentive to care about collective goods like environmental quality or long-term human well-being. Hardin (1968) declared that management of the commons needs strong central authority. Heilbroner concluded that the only hope for humanity lies in monastic government combining 'religious orientation with military discipline' (Heilbroner, 1991: 176-7), Ophuls in his analysis of the political ramifications of ecological crises recommended establishment of governing class of 'ecological mandarins' (1977: 163).

More recently, as the influence of the limits discourse in green politics has declined, attention has turned to sustainability discourse, and it has been suggested in the political – ecological belief that there is a right way to live green *Good Life* within the extended liberal democratic framework. According to sustainability discourse this new green imperative is more value-oriented in its origin. Thus, a task for political ecologists is to work for the preservation of this “natural value” through time and space. Now we are increasingly aware that policies in the present will have an impact on those in the future<sup>3</sup>. From the point of

view of the standard democratic four-year cycle this is a problem, since government generally has an eye on short-term policies for short-term gain (Dobson, 2000b: 117). The dynamics of political accountability cannot easily be made to work in the environmental context. There is also well-known that many environmental problems are of an international character: global warming, ozone depletion, deforestation, desertification, ecological migrations etc. are some issues that affect many nations. All these raise particular problems for the democratic process because democratic structures, almost without exception, are based on the nation-state and only few environmental problems coincide with nation-state boundaries.

Western style liberal (representative) democracies are largely unable to achieve significant environmental ends. Democratic majorities can and frequently do favor decisions and policies that degrade or destroy the natural environment. One part of greens organizes themselves into political parties and pressure groups nominate candidates for election to public office and lobby on behalf of their green agenda. They are usually co-opted and their movement corrupted, because they are forced to compromise of gaining piecemeal political victories (Ball, 2006: 133). But nature is not merely one interest group among

---

<sup>3</sup> Technological innovations, perhaps particularly nuclear power and the accompanying production of very long-lived radio-

---

active wastes have given the present generation of humans the capacity to affect people, animals and ecosystems tens of thousands of years into the future (Ball, 2006: 140).

many; its interests are not on a par with those of corporate polluters and should not be viewed as negotiable. The other part of greens (most greens) professes to be grass-roots democrats who favor widespread political participation and decision-making by the majorities at the local level. Just like Dobson notes, “*greens argue for radically participatory form of society in which discussion takes place ...*” (1990: 25). But some greens have found that decentralized grass-roots democracy is not necessary friendly to the environment. In other words, democracy need not result in green outcomes or as Goodin (1992: 168) observes: “*To advocate democracy is to advocate procedures, to advocate environmentalism is to advocate substantive outcomes*”. That is why we now stand before a great challenge: is there a green conception of democracy that retains the virtues and avoids the shortcomings of democracy as presently understood? We now need to ask how green democracy might differ from earlier variants of democratic theory and practice? In search to find that kind of green democracy, Dryzek (2000: 147) pointed that for democracy, however contested concept, and with many variations in the last two and a half thousand years, is basically anthropocentric. Ball (2006: 136) believes that democracy as presently conceived is now being subjected to the ecological challenge and is open to critique and transformation. Green democracy distinguishes from other variants in the immense widening of

the moral and political community to encompass in Aldo Leopold language “biotic community”. A more inclusive ecocentric outlook will require innovations in democratic theory and institutional design in practice.

Dryzek (2005: 234) has also suggested that we have to renewed democratic polity and politics toward an ecological (deliberative) democracy. But the question is would such a polity and politics indeed promote ecological values? One affirmative answer he sees in democratic pragmatism: those values that can survive authentic democratic debate are those oriented to the interests of the community as a whole, rather than selfish interests within the community (or outside it) because among such communities interests are the integrity of the ecological base upon which the community depends. From green radicalism comes a reminder that existing liberal democracies frustrate such processes by the influence of power, money, however human communities have lost any sense of their ecological foundations.

Prior to deliberative turn, the democratic ideal was seen mainly in terms of aggregation of preferences or interests into collective decisions through devices such as voting and representation. Under deliberative democracy, democratic legitimacy should be sought in the ability of all individuals subject to collective decisions to engage in authentic deliberation about that decision (Dryzek, 2000: v).



Dryzek argues that discursive democracy is better-placed than any alternative political model to enter into fruitful engagement with natural systems, and so cope more efficiently with the challenge presented by ecological crises (ibid. 141). Some authors see the key to green politics in participation in electoral politics and coalition with other parties to ensure that governments in liberal democracies adopt (if only partially and incrementally) some parts of the green political agenda. This position resonates with “Realo” Greens who believe in working through liberal state rather than pursuing more radical alternatives (Barry, 1999; Dryzek, 2005). They attend closely to vote-maximizing strategies, party organization and parliamentary tactics, and are open to coalition with other progressive forces. This position regards political agency as essentially unproblematic. In other words, all that has to be done is to convince people in position of political authority. But there are numerous reasons why dominant political mechanisms cannot adopt and implement green program. The currently dominant order of capitalist liberal democracy operates in the context of the capitalist market system. Any system operating in the context of such a system is highly constrained in terms of the kinds of policies it can pursue. Policies that damage business profitability are punished by the recall of the market. Disinvestment here means economic downturn. And such

downturn is bad for governments because it both reduces the tax revenue for the policies those governments to pursue (e.g. environmental protection and conservation), and reduces the popularity of the governments in the eyes of the voters. Thus, irrespective of the number of the green lobbyists, green pressure groups, coalition members or parliaments – the first task of any liberal democratic state must always be to secure and maintain profitable conditions for business (Dryzek, 2000; Offe, 1985). Environmental policy is possible in such states, but only very limited and if its damage to business profitability is marginal or if it can be shown to be good for business (e.g. ecological modernization, especially in the North part of Europe).

Apart from economic reasons, there also remain other reasons why the structure of liberal representative democracy itself is incapable of responding effectively to ecological problems. These problems often feature high degrees of complexity and uncertainty. Thus any adequate political mechanism for dealing with them must incorporate negative feedback, co-ordination across different actors, flexibility, resilience, etc. (for more details, see Dryzek, 1987). It is highly expected that liberal democracy does not operate particularly well across these criteria, even when it is organized along relatively open lines of pluralism. In pluralism there are probably a lot of actors with particular interests that do not usually add up to the general ecological interest.

Interests may be placed in proportion to their material political influence and compromises may be achieved across them, but ecological destruction can still result (Dryzek, 2000).

In greening democracy we are looking for some kind of polity that could embed something more than short-term human material interests and achieve more sustainable balance encompassing natural and human systems. It should present to communicate and defend the interests of the affected; and it should be vastly more inclusive than democracy as presently understood. Democracy can exist not only among humans but also in human dealings with the natural world. The key here is seeking more egalitarian interchange at the human/natural boundary. Ecological democratization here is a matter of more effective integration of political and ecological communication (Dryzek, 2000: 145-6).

Ecological (green) democracy should go beyond anthropocentrism. Therefore a prerequisite is *recognition of agency in nature*. Recognition of agency in nature would underwrite respect for natural objects and ecological processes and it also means that we should listen to signals emanating from natural world with the same sort of respect we accord communication emanating from human subjects. Of course, human verbal communication cannot extend into the natural world. But Lovelock's concept of Gaia hypothesis suggests that the biosphere as a whole acts to

maintain the conditions for life. Gaia consists of a complex self-regulating intelligence. And democracy directed toward sustainable balance, encompassing natural and human systems, should be extended in an ecological direction and as Dryzek argues (2000: 151) the best way to do this is through recognizing the communicative capacities that nature and humanity share<sup>4</sup>. How? Dryzek (ibid.) gives the answer: through 'effective listening'<sup>5</sup>. We should listen to signals emanating from the natural world (Gaia) who acts to maintain appropriate conditions for life (Lovelock, 1979).

For most theories of democracy *boundaries* are important. The first task is usually to define the boundaries of the population whose preferences are to be taken into account. The liberal model of democracy also requires boundary between the human and the non-human world. Non-human entities cannot have preferences that we could recognize. Thus green democracy cannot be sought in the shadow of preference aggregation in liberal democracy, but in the shadow of deliberative

---

<sup>4</sup> Equality between humans and non-humans nature in a deliberative context means two things. The first is equality in the capacity to be represented. The second is equality in demanding of the non-human nature on our capacity to listen. The content of such communication might involve attention to feedback signals emanating from natural systems.

<sup>5</sup> Here listening is understood in its most extended sense. It means picking up on things that are not spoken literally and articulately, but are accessible through sympathetic listening, observation, feeling, smelling, tasting, etc.

democracy. Green (ecological) democracy blurs the boundaries between human social systems and natural systems and it is also democracy without boundaries as ecological problems transcend established governmental jurisdictions. Thus new democratic forms may need to be constituted in order to fit the size and scope of particular issues. In deliberative democracy, we predominately look for the essence of democracy not in the aggregation of interests or preferences of a well-defined and well-bounded group of people (such as nation-state), but rather in the content and style of interactions (Dryzek, 2000: 152-3).

Awareness of environmental problems has also brought *new constituencies* on the political agenda. Constituencies whose interests are affected by environmental change, but which are not represented through traditional representative democratic structures and their boundaries. Such constituencies include 'away country' nations (e.g. Polish affected by German acid rain); future generations and the non-human natural world. The question for political ecologists is how might institutions be appropriately redesigned to democratically represent the interests of these constituencies? In literature of political ecology, two very different answers have been given to this question. Goodin believes that the key to representing the interests of these constituencies (particularly those of future generations and the non-human nature) in politics is via the notion of

"encapsulated interests" in a much the same way as the interest of very small children are regarded as encapsulated in those of their parents. That is, nature's interests are internalized and represented by 'sympathetic humans' (1996: 847). Goodin further argues that discursive democracy in the public sphere creates a situation in which interests other than your own are called to mind (ibid.) – what Eckersley (2000) refers to as "enlarged thinking". Goodin and Eckersley believe that appropriate deliberative form should include the non-human nature and future generations. An alternative strategy Dobson (1996) sees in proxy representatives, elected by proxy constituencies, to represent the interests of future generation and the non-human nature in national and transnational legislatures. Both options are not without their difficulties, but discussion of them would exceed the purpose of this article. It should be emphasized when consider natural condition (future generations and the non-human nature) into the form of liberal representative democracy (mostly in national parliaments); it is very likely that their voice will stay ignored.

This extension to the non-human world and future generations it means to think about dismantling what is perhaps the biggest political boundary of them all: that between the human and the non-human world. For most thinkers from mainstream political theory this would be out of the realm of politics and democracy, at least as those terms are conventionally defined.

With this notion of green democracy we are in position both to criticize existing political-economic arrangements and to think about what might work better. Nowadays it is clearly meant that the construction of democracy should itself be discursive, democratic, sensitive to ecological signals and open-ended (Dryzek, 2000: 155). It means we should be open to institutional experimentation and learning, which is a precondition needed for establishing new communication forms and channels that might be even very different from existing democratic institutions in predominantly model of liberal representative democracy. Occasionally it happens that environmental concerns come into alignment and then advances can be made in terms of both democratization and greening of dominant institutions.

## CONCLUSION

Mainstream political theorists have usually regarded green political theorists with a degree of suspicion. Notwithstanding, it seems hard to ignore the particular impact environmentalism has put on the political theory. Much of what has happened in political theory in the recent past has had to do with (re)interpreting the realm of the 'political'. In speaking of 'natural condition' environmentalism brings the non-human natural world into focus. Political ecology takes a further step by admitting the non-human world into the moral and political community. Interests of

animals, future people and natural systems that sustain us are not only morally but politically considerable. This recognition brings at least rethinking and revision of the most significant concepts in political theory, among them democracy. Democracy should be about authentic communication. Overcoming the barriers that distort such communication is essential. One such barrier, long ignored by mainstream political theory but now exposed by green political theory, concerns communication with the non-human world which requires theoretical, conceptual and institutional innovations. Only then new, innovative communication forms enable collective creative process and therefore offering new conceptual solutions to the existing environmental problems.

## LITERATURE

- BALL, T.** (2006). *Democracy*. In: Dobson A., Eckersley R. (eds.), *Political Theory and the Ecological Challenge* (pp131-147). Cambridge: Cambridge University Press.
- BARRY, J.** (1999). *Rethinking Green Politics: Nature, Virtue and Progress*. London: Sage.
- BENTON, T.** (1993). *Natural Relations: ecology, animal rights and social justice*. London: Verso.
- BERLIN, I.** (1978). *Does Political Theory Still Exist?* In: Hardy H. (ed.), *Concepts and Categories: Philosophical Essays* (pp147-165). London: Hogarth.
- DOBSON, A.** (1990). *Green Political Thought*. London: Routledge.
- (1996). *Democratizing Green Theory: Preconditions and Principles*. In: Doherty B., Geus de. M. (eds.), *Democracy and Green Political Thought: Sustainability, Rights and Citizenship* (pp132-150). London: Routledge.

- (1998). *Justice and the Environment: Conceptions of Environmental Sustainability and Dimensions of Social Justice*. Oxford: Oxford University Press.
- (2000a). *Political Theory and the Environment: The Grey and the Green (and the in-between)*. In: O'Sullivan N. (ed.), *Political Theory in Transition* (pp 211–224). London: Routledge.
- (2000b). *Green Political Thought*. London: Routledge.
- (2003). *Citizenship and the Environment*. Oxford: Oxford University Press.
- (2006b). *Citizenship*. In: Dobson A., Eckersley R. (eds.), *Political Theory and the Ecological Challenge* (pp216–231). Cambridge: Cambridge University Press.
- DOBSON A., ECKERSLEY R.** (2006a). *Introduction*. In: Dobson A., Eckersley R. (eds.), *Political Theory and the Ecological Challenge* (pp1-4). Cambridge: Cambridge University Press.
- DRYZEK, S. J.** (1987). *Rational Ecology: Environment and Political Economy*. New York: Basil Blackwell
- (1990). *Discursive Democracy: Politics, Policy and Political Science*. Cambridge: Cambridge University Press.
- (1992). *Ecology and Discursive Democracy: Beyond Liberal Capitalism and the Administrative State*. *Capitalism, Nature, Socialism* 3 (2): 18–42.
- (2000). *Deliberative Democracy and Beyond: Liberals, Critics, Contestations*. Oxford: Oxford University Press.
- (2005). *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.
- ECKERSLEY, R.** (1992). *Environmentalism and Political Theory: Toward an Ecocentric Approach*. London: UCL Press.
- (1996). *Greening liberal democracy: The rights discourse revisited*. In: Doherty B., Geus de M. (eds.), *Democracy and Green Political Thought. Sustainability, Rights and Citizenship* (pp212–236). London: Routledge.
- (2000). *Deliberative democracy, ecological representation and risk: towards a democracy of the affected*. In: Saward M. (ed.), *Democratic Innovation: Deliberation, Representation and Association* (pp117–132). London: Routledge.
- (2004). *The Green State: Rethinking Democracy and Sovereignty*. London: MIT Press.
- (2006). *Communitarianism*. In: Dobson A., Eckersley R. (eds.), *Political Theory and the Ecological Challenge* (pp91-108). Cambridge: Cambridge University Press.
- FAULKS, K.** (2000). *Citizenship*. London: Routledge.
- GOODIN, R.** (1992). *Green Political Theory*. Cambridge: Polity Press.
- (1996). *Enfranchising the earth and its Alternatives*. *Political Studies* 44: 835-849.
- HARDIN, G.** (1968). *The Tragedy of Commons*. *Science* 162: 1243-8.
- HAYWARD, T.** (1995). *Ecological Thought: An Introduction*. Cambridge: Polity.
- (2004). *Constitutional Environmental Rights*. Oxford: Oxford University Press.
- HEILBRONER, R.** (1991). *An Inquiry into the human prospect: Looked again for the 1990s*. New York: Norton.
- HELD, D.** (1995). *Democracy and the Global Order*. Cambridge: Polity Press.
- HORKHEIMER, M., ADORNO T. W.** (2002). *Dialektika razsvetljenstva: filozofski fragmenti*. Ljubljana: Studia humanitatis.
- LAFFERTY, W.J., MEADOWCROFT J.(EDS.)** (1996). *Democracy and the Environment: Problems and Prospects*. Cheltenham: Edward Elgar.
- LOVELOCK, J.** (1979). *Gaia: A new look at life on Earth*. Oxford: Oxford University Press.
- MAREGA, M., KOS D.** (eds.) (2002). *Aarhuška konvencija v Sloveniji: strokovna priporočila za implementacijo Konvencije o dostopu do informacij, udeležbi javnosti pri odločanju in dostopu do pravnega varstva v okoljskih zadevah*. Ljubljana: Regionalni center za okolje za srednjo in vzhodno Evropo.
- MATHEWS, F.** (1991). *The Ecological Self*. London: Routledge.
- MEADOWS, D.H., MEADOWS, D., RANDERS J., BEHRENS W.W. III.** (1974). *Meje rasti: Poročilo za raziskavo Rimskega kluba o težavnem položaju človeštva*. Cankarjeva založba: Ljubljana.
- MELO-ESCRIHUELA, C.** (2008). *Promoting Ecological Citizenship: Rights, Duties and Political Agency*. *ACME: An International E-Journal for Critical Geographies* 7 (2): 113–134.
- NEUMANN, F.** (1992). *Demokratska i autoritarna država*. Zagreb: Naklada Ljevak.
- OPHULS, W.** (1977). *Ecology and the Politics of Scarcity*. San Francisco:

W.H. Freeman.

**OFFE, C.** (1985). *Družbena moč in politična oblast: protislovja kapitalistične demokracije – razprave o politični sociologiji poznega kapitalizma*. Ljubljana: delavska enotnost.

**PAEHLKE, R.** (1988). *Democracy, Bureaucracy, and Environmentalism*. *Environmental Ethics* 10 (4): 291–308.

**ROLSTON, H.** (1983) *Values gone wild*. *Inquiry* 26: 181-207.



## ECOLOGY, LOW-CARBON SOCIETY AND POLITICS

**Abstract:** The developmental concept of a “Low-Carbon Society” (LCS) is an operational concept, on which the governments of developed countries are building their way out of environmental and technological-developmental quandaries. The concept itself has not been subject to any significant reflection and criticism in expert circles and has quietly taken up residence in public policy. The central role of technological development as a precondition for new momentum of the economic cycle needs to be problematized. This concept also clearly establishes a hierarchy among different sciences and technologies, and reserves only a secondary role for social sciences, a role in which their production of knowledge must be embedded into the reproduction of the existing political-economic order.

**Keywords:** ecology, development, science, low-carbon society, glocalisation, capitalist mode of production, critical political ecology

## INTRODUCTION

In February 2014, the Ministry of Agriculture and the Environment of the Republic of Slovenia presented a proposal for an operational programme to reduce greenhouse gas emissions<sup>1</sup> by the year 2020 to the public. The proposal includes measures in the energy sector (the energy rehabilitation of buildings), transport, agriculture and waste management, i.e. those activities which emit a considerable proportion of greenhouse gases in Slovenia and which are not included in the trading system of greenhouse gas emissions. The main objective of the programme is that greenhouse gas emissions do not increase by more than 4 percent by 2020 in comparison with the year 2005. It is obvious that the executive public authority has been striving to achieve the Kyoto protocol agreement targets for many years. The data show that emissions from transport increased by 28.7 percent, while emissions from fuels in households and service industries decreased by 24.4 percent and in agriculture by 5.1 percent over the period 2005–2011. Emissions from individual sectors which do not fall in the trading system changed significantly in 2011. In the period after 2005, transport has become the main source of greenhouse gas emissions in Slovenia.

Naturally, this change needed to be reflected

---

<sup>1</sup> Greenhouse gases are carbon dioxide, methane, nitrous oxide, fluorinated hydrocarbons, perfluorocarbons and sulphur hexafluoride.

in the new programme. The government therefore want to take measures in the fields of the energy rehabilitation of buildings, of transport, agriculture and waste management. The main aim is to develop eco-industries, which will bring stable and internationally competitive green jobs with a high added value and contribute to reducing greenhouse gas emissions in the aforementioned sectors. In this context, Slovenia will also stimulate the research and development of “green technologies”.

### Climate Change and the Concept of the Low-Carbon Society

The reality of man-made climate change<sup>2</sup> and its potentially long-term damaging impact on society and economy are now becoming widely accepted. There is a growing scientific and political consensus that significant action will be needed to manage the transition to a low-carbon society (LCS) or low-fossil-fuel economy (LFFE)<sup>3</sup>. The main goals are to redesign institutional networks and establish a low-carbon economy (LCE), thus avoiding catastrophic climate change and creating a more advanced, zero-carbon society and a renewable energy economy. It seems that the global transition towards a low-carbon

---

<sup>2</sup> Due to anthropogenic (human) activity, greenhouse gas (GHG) emissions are either causing climate change (global warming) or making climate change worse.

<sup>3</sup> An economy that has a minimal output of greenhouse gas (GHG) emissions into the environment (referring mainly to the greenhouse gas carbon dioxide)

economy has become an imperative. Many countries have promised to cut their emissions by 100 percent by offsetting emissions instead of ceasing all emissions (carbon neutrality). The concept of low-carbon economy integrates all aspects of itself (from manufacturing, agriculture and transportation to power-generation, etc.) around technologies that produce energy and materials with low greenhouse gas (GHG) emission (green technologies).

Apart from modelling, recording and gathering data on different types of climate changes, running simulations and considering alternatives, ecologists- scientists have been creating scientific bases and proposing several measures for the reduction of undesirable trends and risks arising from climate change. This is a very broad subject, so we will limit ourselves to presenting only the development model of the low-carbon society proposed by Geels in 2002. In his model of the transition to a low-carbon society, technology plays a central role, offering new opportunities for new market niches.

Nevertheless, the social process of change includes two other factors:

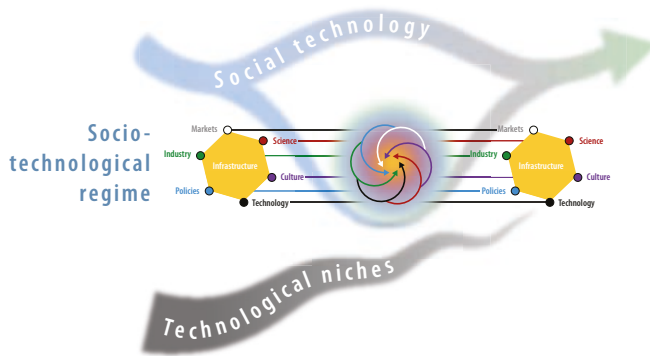
1. sociotechnological regime, which includes culture, politics, science, industry, markets and consumers; and
2. social technology, which by raising environmental awareness exerts pressure on the aforementioned factors and enters



a process of constant changing and self-changing.

All three levels together allow the changes in society which lead to a lowcarbon society. The fact that technology is placed into the very core of the transition from the existing society to a low-carbon society has significant implications for science as well, which Geels's model also takes into account.

Picture 1: GEELS'S MODEL



The pressure of environmental awareness and new findings in science and technology are changing the notion of the natural and technical world and opening up fresh opportunities for new inventions and innovations. To aid the implementation of technological innovations, the social sciences and humanities have to discover pertinent social blockades and obstacles and prepare proposals for overcoming them. The entire spectrum of science disciplines is thus functionally involved in solving the

existential hardships of humankind caused by climate change, by being partly instrumentalized by politics and partly by capital. The hierarchy between the sciences is clearly set: technical knowledge and the sciences are a prerequisite for the development of new technologies, while the human and social sciences, on the other hand, are needed for their implementation, by eliminating obstacles on the way. It seems that new low-carbon technologies are the best solution to environmental problems, especially regarding climate change, which means that they are in fact the saviours of the world.

## Imaginary of the World and Environmental Problems

Since the seventies, various top experts, Nobel Prize winners and other scholars have been presenting their own expert views and suggesting "simplified" solutions for environmental problems to the global public. Environmental problem solving at the local, regional, and at the global level is no longer possible without the political action of public authorities (and their integration at various levels), without the intensive involvement of experts in various disciplines, without the environmentally aware public and consumers, various green movements and civic initiatives and without NGOs and green capital. There seem to be no structural or systemic conflicts between these actors, the differences between

them appear mainly at the level of strategies, tactics, and collective or personal views.

In the last few decades, scientists in various disciplines have significantly contributed to new discoveries concerning the laws of nature, society and man. These findings have not remained confined to scientific circles. Individuals (as consumers, citizens, workers) have been faced with new technologies and techniques, which entered their world and so radically changed their lives that a life without constant advancement in technology no longer seems possible. The effects of the use of various technologies in the economy and in the “world of life” have on the one hand been desired, yet unwanted on the other, especially regarding the environment, which translates into the »necessary conditions for our existence«. We should be particularly concerned about the effects that are caused by long-term processes, which escape our daily attention and are by their nature irreversible; this means that the “necessary conditions for existence” gradually change into the conditions which will not support life or the existing life forms. The detection of these effects is the task of the sciences and their findings should have a place in the media and in civil society. Political actors intervene at both levels: at the level of policy and at the level of polity. This means that, on the one hand, they react to the changed imaginary of the world, and on the other hand, they try to

establish regulatory and financial conditions for two contradictory processes, for scientific and technological development, and the elimination of undesirable, especially irreversible effects on the living conditions, which radically change the “necessary conditions for existence” in certain areas, or on the planet as a whole.

In these efforts, political actors seek shelter under the umbrella of science and science has usually offered them an imaginary of a new world, on the basis of which political actors create their visions and strategies for social development, and new technical-technological solutions for politically articulated practical problems, which are then transformed into different conceptual solutions and policies. While environmental problems were for centuries reduced to the local, regional, and the national and international levels, we talk nowadays about global problems, about the global change of “natural living conditions”.

Environmental problems which were limited to a certain area were dealt with in science and politics only within the national borders, rarely at the interstate level. The environmental problems of global dimension were not immediately recognized as the problems which should be dealt with by humankind as a whole. The weight of this burden lies on the shoulders of today’s generations, which will leave better or worse (perhaps even impossible) living conditions behind as their heritage for

future generations. Environmental issues have become global as much as local, and the newly coined term “glocalisation”<sup>4</sup> testifies to this new phenomenon and to the understanding of this phenomenon. In the new circumstances, science and politics were forced to »glocalise« themselves. How does science respond to these new challenges, and how do politics?

### DEVELOPMENT OF ECOLOGY AS A SCIENCE

The science which has some conceptual solutions for environmental problems is ecology. With good conceptual origins, ecology became a total science, and was as such able to conceptualize global environmental problems. Naturally, ecology came to this conceptualisation gradually.

Ecology as a natural science appeared less than 150 years ago, more specifically in 1868, when German biologist Ernest Haeckel suggested that one part of zoology should be called so. He made an important conceptual shift: from the old examination of individual animal species *ad abstractum* to the study of interactions between the species as such and the environment in which a certain species lives. Ecology upgraded Haeckel's concept and abandoned Haeckel's original assumptions, which introduced a specified hierarchy in the animal world, based on the value scale, e.g. animal species ranked higher than plants, macro-organisms higher than microorganisms, etc. Ecology also abandoned

his restrictive approach and focused on the study of ecosystems as a whole. In this way, ecology increased its complexity. However, its conceptual development was not yet finished.

A further, even more fatal, conceptual shift in ecology was made when ecology included human as a special “species” in its study and thus became a controversial discipline from different perspectives. When ecology involved the interaction between man and the environment, or the subject »man in the ecosystem«, it ceased to exist as a mere natural science; it also became a social science, i.e. a hybrid discipline, with all the conceptual, theoretical and methodological problems brought by such a reconceptualization.

Ecology has become an integrative discipline, which is inclined to involve new disciplines. Ecology, as a social science, received another dimension, which it, as a natural science, did not have before. In the early seventies, ecology became prognostic; it started answering questions about the future (Enzensberger, 1985: 98) and thus reassuring people. Ecology in this new version became a »sociologically and futurologically deformed« natural science. Ecology also needs to deal with itself, its own problems and issues arising from its totality and futurology. Pragmatic resolving of outstanding issues (ecology does not waive such an approach even today) seems to be an expression of theoretical helplessness and the opportunistic acceptance of the status quo in ecology itself.

The impression is that ecology, which is gaining public attention and political power, is satisfied with itself and its role.

### Main Ecological (Hypo)Thesis

In the seventies, ecology, a redesigned science, forged its way from the periphery to the forefront of expert and public attention as an important synthetic discipline. Its ascent was assisted by its main thesis, which Enzensberger formulated as follows: Industrialised societies on Earth produce ecological contradictions, which will in the near future necessarily lead to their own ruin (Enzensberger, 1986: 99). The statement referred to the future and is therefore hypothetical as well as prognostic. Both dimensions of the thesis attracted the attention of the mass media, as they opened the door for different (catastrophic and other speculative) writing about what will happen to human society in the near future. Nonetheless, the describing of all possible types of disasters was no longer based on simplified linear argumentation, because the widespread ecological perception of the causes of possible collapse of human society does not allow that kind of reductionism.

There are more possible reasons for the potential collapse of human society. As it turns out, the limitation of using measures which cover only one factor might still cause the others to evade control. Policy measures for the prevention of the ecological crisis can therefore not be

designed in a linear and monocausal way. Partial measures can lead to a chain reaction of adverse effects in other factors and may further deepen the ecological crisis. It seems that we are today still committed to this type of conceptualization of policies, and the adopted measures therefore do not have positive synergistic effects on the ecological crisis. According to Enzensberger, the synergistic factors of the ecological crisis are:

- Industrialisation leads to the growth of the world population, which results in increasing material demands of this growing population. The policy of international aid for underdeveloped countries, developed humanitarian aid systems, etc., fight against this trend.
- The industrial process is based on non-renewable energy resources (fossil fuels), which will eventually be exhausted. Energy policies are defying this trend with the concept of negawatts, energy efficiency, smart grids, renewable energy resources, etc.
- The industrial process depends on the mineral raw materials (metals), which are also non-renewable and will be exhausted over time. Humanity has been fighting against this shortage with the recycling policies.
- The industrial process requires a lot of water, and since watercourses do not satisfy the demands, ground water is pumped and used. There are at least two problems on the horizon: disturbance of the water cycle and

climate change. Humankind fights against this trend by developing and implementing climate change policies, drinking water policies, wastewater treatment policies, closed water cycle policies (industrial water recycling), policies on privatising water resources, etc.

- Food production is limited and cannot be increased indefinitely. These trends are counteracted by alternative food production policies (from organic farming to the revival of gardening), irrigation policies, food self-sufficiency policies, policies on genetic engineering in agriculture, research policies (the development of new pesticides and fertilizers), etc.

Apart from the factors, which are directly involved in the industrial and agricultural processes, there is also a whole set of different types of environmental »pollution«. According to Enzensberger (1986: 101), »environmental pollution« includes psychological and heat pollution, and we can add light pollution as well. According to the second law of thermodynamics<sup>4</sup>, heat “pollution” is present in all energy-change processes. Naturally, this law has significant implications for the understanding of the rising temperatures on Earth, which is also related to climate change. Between nature and human

society there are disturbances in equilibrium, dysfunctions in material exchange, which originate in the industrial and agricultural processes. Due to the imbalanced exchange of substances, the atmosphere is changing as well: smog, climate changes, changes in the oceans, rivers, glaciers, forests, etc.

The intertwining of the effects of different types of material exchanges leads to complex imbalances. Any partial policy measures which target an isolated imbalance of exchanging substances fail. The policies which aim at balancing material exchanges are not guided only by the prevention, restriction, substitution, etc., of harmful substances in nature, they understand material exchange more as a cyclic movement, which includes selection processes and recycling, incineration, composting, establishing closed circles, cleaning, etc. Undesirable side effects and their procedural complexity require a change in the way we understand them (a new conceptualisation, new paradigms, etc.). Consequently, political actions and measures should change as well.

While all this is related to the first part of the basic thesis of ecology, we will now focus on the second part of it, the prognostic dimension of the hypothesis. So the main question is: When will such an ecological disaster occur on Earth? Due to the complexity of this issue and the impossibility of quantification of all important variables, it is impossible to say when we will

---

<sup>4</sup> The second law of thermodynamics (entropy) is criticised by Andrej Detela (2014), who has developed a new paradigm named »syntropy«.



reach the point of no return, when irreversible changes on Earth lead to the conditions which do not support the existing forms of life anymore. The next question is: Which factors will cause this disaster? If decades ago, the dispute between the two schools was whether the significant factor was »population growth« or »industrial technology«, the widely accepted hypothesis today is that climate change will lead to an ecological disaster. This, however, opens the third issue: What do we mean by this ecological disaster? What will it be like? There is no uniform response. In the early seventies, Enzensberger mentioned the following answers: some ecologists expect greater threats (e.g. climatic, physiological, social and political), others expect the end of the social forms which are based on industrialisation (they expect a transformation into a post-industrial society), and doomsters predict the end of the world (the human species, as well as many other species on the planet, will become extinct).

All ecologists who give such different forecasts believe that the current state of damage can be repaired and in that sense also propose what ought to be done in order to prevent an ecological disaster. Their suggestions are usually one-dimensional and flattened, but it seems that they are acceptable as the basis for the formulation of environmental policies.

## Social and Political Awareness of Ecologists

Scientists engaged in individual environmental problems are usually not known to the general public. Their work is highly specialized; they are involved in research with well-defined research goals, normally financed by public funds. Their influence is reduced to the influence of consultants. Such ecologists-specialists cooperate with the industry only when their findings and discoveries can directly benefit the industry and can be used for the creation of new market niches.

However, there are also generalists among ecologists, who inform the public about their insights, spread their knowledge and thus help raise general awareness about the problems of the depletion of nature and the destruction of the environment. They write articles in scientific, professional and other journals or magazines, they appear on the television and radio as commentators on current environmental problems, they also participate in scientific congresses, their discussions and papers are available on the internet, they are involved in making documentaries, they write scientific books and bestsellers of various genres (from crime novels to comics), etc. Yet their impact does not end there, they also enter politics. With their perceptions of what needs to be done, they are directly or indirectly involved in the shaping of reform promises made by parties or/and governments. Their involvement in the public and political space, however, does not stop at



the borders of national states. International organizations (e.g. the UN) include them in international interdisciplinary groups in order to prepare the scientific bases for political decisions.

Ecologists-scientists participated in the design of the concept of sustainable development in the eighties, which was accepted in Rio de Janeiro in 1992 as a concept of the development of the planet. Only a few years later they provided their expertise on climate change, which served as the basis for the concept of the low-carbon society (LCS), if we mention only the two most important political decisions, which had an enormous impact on further development at the global level. Regardless of their impact on the public and contribution at various levels in decision-making processes, it is necessary to analyse their proposals for action. These proposals, apart from scientific findings, include elements of the dominant ideology and of scientific extrapolation<sup>5</sup>, which are derived from their specific knowledge and provided in a way which is characteristic of the discipline in which they were socialized as experts.

## Two Cases: Ecologists-Scientists Give Recommendations for Action

An example of such recommendations for action from the seventies was written by Paul Ehrlich,

---

<sup>5</sup> To extrapolate: to arrive at conclusions or results by hypothesizing from known facts or observations; to speculate about consequences on the basis of known facts or observations.

the founder of human ecology. In his work, under the subtitle “Positive programme” we can find the instructions for the political actions Americans and their government should take, internally and externally (internationally). He sees his action programme only as a palliative measure for the crisis, which, of course, does not eliminate its causes. He claims that:

- The decline in population growth in the United States needs to be stimulated;
- Economic de-development in the United States is crucial if the quality of the environment is to be restored in North America;
- The international role of the United States is to promote de-development; in the developing countries, it would also support the control of population growth and limitations on environmentally problematic industrialization;
- The modernisation of the government form in the United States.

When Ehrlich identifies the true bearers of change and their supporters, he says that it is not possible to save the world at a critical moment by tearing down the old (democratic) institutions, simply because there are no rational plans for new and better institutions; and even if there were any, there would not be enough time to implement them. In short, it is not the right time to revolutionize the democratic institutional

system. At that moment, it is only possible to adapt the old institutions to the new situation, otherwise we risk catastrophe, he maintains. He sees the modernisation of the political system as the only possible way out. Visionaries and pragmatists advocating development in the United States, as well as in other parts of the world, addressed environmental problems without a vision, argues Ehrlich. They did not answer the question of what the image of “spaceship Earth” should be, nor did they have any ideas about what kind of crew this ship needed.

The second example is summarized by a few thoughts of Gosta Ehresvard (1971: 105–107), a biochemist from Sweden, who in 1971 carried out a comprehensive analysis of ecological conditions. He believes that it is still time to develop a long-term perspective and to take action, and that we have not yet reached the point where we can only passively observe what is happening and comfort ourselves with short-term and pragmatic activities. He believes that it is possible to prevent the catastrophe on condition that humanity chooses global measures, which would allow the transformation from an industrialized economy to a new type of agrarian society.

His vision of the future is actually a “back to the past” vision. His proposals are:

- Fossil fuels and electricity – rationalise
- Production of luxury goods and armament – stop

- Food in industrial countries – self-sufficiency
- Scrap metal – recycle
- Research – priorities
- An international institution for the coordination of development – establish (for the purpose of informing the population of this planet on the state of energy and mineral supplies, on the development of research and on demographic conditions)

We could continue with the presentation of these kinds of analyses and proposals presented to the public in the last forty years by more or less renowned natural scientists and technicians. Recently, this line of thinking has been continued by the thematic round tables which accompany the annual Nobel Prize Award ceremonies, involving famous Nobel laureates (NWD, 2014). If an anthology of the action programmes written by natural scientists in the last few decades had been compiled, we could observe – out that the essential dimensions of their proposals are similar. In a way, their proposals can be understood as consensually accepted ideas about what ecology can offer in terms of guidelines for action at the global level. Many of their ideas have by now penetrated the political programmes of international institutions, national and party policies, as well as environmental movements and initiatives. It is basically a hegemonic view of the ecological

crisis; and because of the fact that these ideas have a lot of political power, it is necessary to reconsider them and show their internal boundaries/ limitations.

### A Critique of the Missionary Approach

Enzensberger criticizes the missionary approach, used by ecologists who generate »quick solutions«, with which they would like to save the world from imminent doom. To their treatises on the inevitable end of industrialization or civilization or humankind, or even life on the planet, they, on the other hand, never forget to add a chapter in which they emphasize that things can turn out differently. This mainly depends on the reasonableness of each individual, and if a sufficient number of individuals comprehend in time what it is all about, then the world can be saved and a future for the coming generations is assured. Rational individuals who actively resist the impending danger are that political power on which ecologists who advocate quick solutions place their bets. Another characteristic detected in ecologists of quick solutions is a sudden break in the structure of their discourses, a rhetorical twist that appeals for a different kind of action. The analytical side is trying to scare us, the concluding part is trying to convince us; at least one of them has no credibility, says Enzensberger. The next characteristic reveals the intention of such practices. Warnings and threats are

there to prepare individuals for the conversion required by ecologists of quick solutions, while the latter part, which gives us hope, serves as a counterweight, so that we would not take the grim picture of the future too seriously and succumb to despair, apathy or inaction. Enzensberger reveals the similarity between the structure of the treatises of ecologists of quick solutions and the structure of Sunday sermons used by every parish priest. In both cases, the architectonics, which is basically built on the mechanics of the persuasive method, is similar.

Enzensberger uncovers certain elements, which are to be highlighted and considered, not only at the structural level, but also at the content level. He criticizes Ehrlich that his reasoning is permeated with the consciousness of White Anglo-Saxon Protestants (WASP), which can most distinctly be seen in his social and political imaginary. Ehrlich does not support radical interventions in the political system of the United States. The political system is perceived in the manner of WASP, therefore his perception of the political system is completely ideologically coloured. Thus Ehrlich understands elections as an appropriate means of resolving a variety of conflicts. It is only necessary to elect the right candidates (qualified and well informed about the situation) and occasionally press them with campaigns, letters and citizens' initiatives. If nothing else works, he envisages the establishment of a new

(environmental) political party. For him, politics is a matter for politicians, who are expected to act “responsibly”; political processes are entirely personalized. The economy is left to economists and businessmen, who must act in accordance with Ehrlich’s ideas. He does not recognize class contradictions and class interests, imperialism does not exist, and world peace will be established with disarmament procedures. Ehrlich’s social and political imagery is complemented with a vision, which the modern world does not possess. Enzensberger concludes that Ehrlich performed a complete de-politicization of ecological issues with his ideas by eliminating all the social aspects and consequences. His concrete proposals and demands for the restriction of population growth, for economic de-development and the draconian rationalization in various fields apparently do not affect any interests and privileges, and they do not require any change in the social, economic or political system. Consequently, his ideas can be realized only on condition that the ideas are proposed by an enlightened moralistic mind and carried out in a peaceful, liberal way. In this way, he eliminates the possibility that someone would take his demands seriously and call for radical social and political change.

At first sight it seems that Gosta Ehresvard formulated similar demands much more radically and in cold scientific language, but his line of argument is also apolitical, the same as

Ehrlich’s. Nevertheless, due to his sense of reality, he placed his research at the top of his priority tasks. By including his interest in the programme, he managed to introduce a dimension of social interest into the programme, even though the social interest in his work is understood in an extremely narrow and limited way. Enzensberger concludes his ideological reflection on the treatises of ecologists of quick solutions with a provocative thought that we are not dealing with fools because they did not take their “immediate programmes” seriously. If we are not dealing with lunatics, we then need to explain to ourselves why such minds resort to such nonsense regarding their proposed measures. Enzensberger seeks the answer in their limited scientific competence; they do not overcome the limits of their biological discipline and therefore remain within the old concept of ecology. Generally, there is nothing wrong with the professional competences of these ecologists and we would make a mistake if we, on the basis of their social ignorance and methodological weakness, conclude that their professional statements which relate to their subject of research are false and unfounded. On the contrary, each line of argumentation which is based on the causality of natural science is quite useful, but their forecasts, derived from these findings, due to the methodological inadequacy, lose credibility and general validity. They spread their thinking and ideas to human society, although they were really not familiar with the

subject. It is no coincidence that they overlooked the specifics of human life (in comparison with other forms of life). Human life namely cannot be comprehended without taking into account its social and cultural dimensions. Since the statements of ecologists-scientists about the present and the future are quietly committed to this reductionism, their findings need to be reduced to the field in which their knowledge was created. As soon as they leave the grounds of their disciplines, their statements reproduce the consciousness of the class to which they belong. And this is not the class of the silent majority. Ecologists-scientists are a privileged and loud minority in a class which they also help to reproduce ideologically. At this point, we have to ask ourselves how to return the political and social dimension to ecological issues, which are totally depoliticized in the scientific discourse. As mentioned before, the forecasts of ecologists of quick solutions are founded on scientific findings, which are uncritically extrapolated to human society because of their ignorance of social sciences. As a result, their future predictions are, due to this reductionism, losing their validity and credibility.

The aforementioned predictions about the collapse of the world and its terrible end are not a figment of their imagination, they are based on the findings about actual tendencies and trends. Nonetheless, they are instrumentalized and embedded in the ideology of the ruling class,

which in itself is no longer optimistic. A lack of optimism is also characteristic of the central “ecological hypothesis.” Since what it claims and what it says can be fatal for the future of humanity, it should become the starting point for any consideration of the future, as long as it cannot be wholly refuted. Here we need to add that the focus on the future is a constant of socialist thinking, although there are also left-wing political groups who believe that dealing with the future is truly a luxury. The political Left has in fact no good reasons not to deal with perspectives and long-term goals, which cannot be said for its antipode, or political advocates of the bourgeoisie, who are committed to more short-term interests of capital and who want to maintain their present position in the future.

### **The state, Technocrats, and Environmental policy**

In developed countries, environmental issues are dealt with by technocrats, who are employed in both the state apparatus and in industry. Their efforts are supported by those who actively engage in solving environmental problems in international or global institutions by creating normative frameworks and dictating conditions for resolving environmental issues at lower levels. This is not uncommon, if we know that the global hegemonic concept of solving the environmental problems of the world has been designed and adopted in these institutions for the last forty



years. The two examples are, the concept of sustainable development, which was globally adopted in Rio de Janeiro in the early nineties, and the concept of the low-carbon society, which was adopted fifteen years later, when climate change became an ideological framework for solving global environmental issues.

Technocrats deal with environmental problems fragmentarily and pragmatically, seeking the quickest partial solutions to specific environmental problems. Not only do they predominantly focus on the technological level of problem solving, they also give their full attention only to the problems which carry the potential for an outbreak of a serious economic or political conflict. Their role, however, varies from country to country and depends on whether a state is able to afford to solve environmental problems in the first place. Indeed, while some countries can afford to plan growth and even profit from counteracting environmental damage, some others are far from being able to do that. Through environmental public policies, developed industrial countries can further stimulate the accumulation of capital by shifting investments to new environmental technological niches, i.e. to various forms of environmental clean-up processes and recycling of different types of waste, to the promotion of intensive growth processes (for example in agriculture), to the innovation and implementation of new “green” technologies, to new energy sources, etc. Other

countries will be forced to implement the policies of ruthless exploitation of the available raw material resources (minerals, water, land, forests, etc.), which will, due to structural dependency, be sold on the world market below their value, and the policies enforcing monocultures and/or genetically modified plants, etc., in agriculture. So, what is not structurally possible for these countries is nonetheless possible for the developed countries of the capitalist centre.

Environmental technocrats perceive themselves as “pragmatic” and the only real solvers of environmental problems, yet they actually do not even possess appropriate awareness of the problem. They belong to the group of manipulators who turn environmental problems to their advantage and make a profit out of the situation. They have a clear political motive and /or economic interest and they are always in the service of the realization of the ruling interests (Enzensberger, 1974: 103).

Hence, it is not difficult to identify common points between environmental technocrats and ecologists-scientists: quick solutions to environmental problems, limited to the technological dimension, and a simplified imaginary about the social, cultural and political dimensions of human life. Common ideological orientation and the aforementioned common points are a good guarantee for a long-term political alliance and symbiosis between environmental technocrats and ecologists-



scientists, despite occasional public conflicts caused by some experts who disagree with certain political decisions (usually, they do not support the solution which has been selected among several possible alternatives).

### An Example from History

The following historical example about state intervention in the field of environmental protection shows that the behaviour of technocrats has not changed much in the basic dimensions so far, and that today's environmental policies are still guided by utilitarianism, which is one of the most powerful and persuasive approaches to normative ethics in the history of moral philosophy.

Since the beginning of the English industrialization, the damaged environment has had a negative effect on the production process itself, as well as on people's lives. The regulation of this process has remained a hot political topic, which is manifested in recurring disputes about environmental legislation on the jurisdiction of state monitoring, in shifting the burden onto each other, and enforcing the "polluter pays" principle. Various proponents get involved in these political battles all the time, yet they repeatedly find themselves in the same polarized positions, in line with the interests they defend.

A good example of the predecessors of today's environmental technocrats is Sir Edwin Chadwick, an English bureaucrat, who headed the inquiry commission on water supply and

sewerage in a Scottish mining village. His role is precisely analysed by American ecologist James Ridgeway (1971). Chadwick was a fan of the utilitarian philosopher Jeremy Bentham and a passionate supporter of state-led reforms. Due to his utilitarian projects, he was hated by people. As a representative of the new class of bureaucrats, he believed in the benefits of administrative mechanisms and reforms from above. On the basis of the reports on sanitary living conditions of the working class in Britain, he provided the central government with greater powers, and designed the continuation of the health care reform. He was convinced that workers should not be exploited to the extreme and that their living conditions needed to be regulated. From his reforms, he expected higher productivity and a higher life expectancy for workers. Although his reforms served the interests of industrialists, he did manage to bring some peace and order to the lives of the poor.

On the basis of Ridgeway's record of Chadwick's projects in the first half of the 19th century, Enzensberger<sup>6</sup> concluded that the rhetoric of ecological reformers at that time was (and still is)

---

6 Although Enzensberger admits that Ridgeway introduced political arguments in environmental issues, which is a rarity even today, he also points out his narrow focus on traditional ecological issues, as if environmental problems had not expanded and deepened over time. Enzensberger claims that Ridgeway was preoccupied with the issue of water pollution and energy supply, which was the key problem of the 19th century, while he forgot about the new dimension of environmental issues, i.e. impending catastrophes, which is the key problem of the 20th and – we can add – also of the 21st century.

used to conceal the specific link between interests; the purpose of controlling pollution top-down is not to limit industrial development, as it is strongly anchored in the general consciousness, but to enable or accelerate it. This can also be said for the concept of sustainable development and the concept of the low-carbon society. These concepts are opening up new opportunities for the further development of society on the basis of a capitalist mode of production, which has no ambitions to prevent, but only to limit pollution. It seems that societies have spent a lot of money solving environmental problems, but achieved little more than to provide higher employment and some extra profit. The efforts to protect the environment, which have been carried out from above, have only marginally slowed down pollution, but have not stopped it. Therefore, the situation continues to deteriorate.

## INSTEAD OF A CONCLUSION

The reflection on the “Proposal for an operational programme to reduce greenhouse gas emissions by the year 2020” and other political documents relating to environmental issues through Enzensberger’s text from the seventies offers a specific (radical) view, which is essential for “seeing the big picture” of environmental problems in Slovenia. Critical political ecology has to take a firm position in current discussions about environmental issues to reveal the dimensions which would otherwise remain hidden.

## LITERATURE

- DETELA, ANDREJ (2014): *Sintorpija v polifaznih zibelkah*. Ljubljana: Elaphe.
- DIAMOND, JARED (2009): *Propad civilizacij: Kako družbe izberejo pot do uspeha ali propada*. Tržič: Učila International.
- DOBSON, ANDREW (2000): *Green Political Thought* (3rd ed.). London/ NY: Routledge.
- EHRENSVARD, GOSTA (1971): *Fore – efter*. En diagnos: Stockholm.
- EHRlich, PAUL R. AND ANNE H. EHRlich (1972): *Bevölkerungswachs und Umweltkrise*. S. Fischer: Frankfurt.
- ENZENSBERGER, HANS MAGNUS (1974): *A Critique of Political Ecology*. New Left Review 1/84. Available on [http:// newleftreview.org/1/84/hans-magnusenzensberger-a-critique-of-political-ecology](http://newleftreview.org/1/84/hans-magnusenzensberger-a-critique-of-political-ecology), 14. 5. 2014 or In: Andrej Kirn (1985): *Pasti razvoja: Ekološke študije*, 98–142. Ljubljana: ČZDO.
- GEELS, FRANK W. (2002): *Technological Transitions as Evolutionary Reconfiguration Processes: a multi-level perspective and a case-study*. Research Policy, Issues 8–9: 1257–1274. Available on <http://www.sciencedirect.com/science/article/pii/S0048733302000628#FIG5>, date of access 14. 5. 2014
- HABERMAS, JUERGEN (1968): *Technik und Wissenschaft als Ideologie*. Frankfurt am Main: Suhrkamp.
- HABERMAS, JUERGEN (1973): *Legitimationsprobleme im Spätkapitalismus*. Frankfurt am Main: Suhrkamp.
- HARRISON, NEIL E. (2000): *Constructing Sustainable Development*. NY: State University of New York Press.
- KIRN, ANDREJ (1985): *Pasti razvoja: Ekološke študije*. Ljubljana: ČZDO.
- LOW, NICHOLAS AND BRENDAN GLEESON (1998): *Justice, Society and Nature: An Exploration of Political Ecology*. NY: Routledge.
- MASLIN, MARK (2007): *Globalno segrevanje*. Ljubljana: Založba Krtina.
- MERCHANT, CAROLYN (1992): *Radical Ecology: The Search for a Livable World*, London: Routledge.
- MINISTRSTVO ZA KMETIJSTVO IN PROSTOR (2014): *Operativni program zmanjševanja emisij toplogrednih plinov do leta 2020*. Available on [http://www.mko.gov.si/si/medijsko\\_sredisce/novica/article/1328/7121/67b6583f3975de8776e04d803b6c1877/](http://www.mko.gov.si/si/medijsko_sredisce/novica/article/1328/7121/67b6583f3975de8776e04d803b6c1877/), 14. 5. 2014.
- NWB – NOBEL WEEK DIALOGUE (2014). Available on <http://www>.

nobelweekdialogue.org/, date of access 14. 5. 2014.

- PIERS, H. G. STEPHENS, JOHN BARRY AND ANDREW DOBSON** (2006): *Contemporary Environmental Politics: From margins to mainstream*. London/NY: Routledge.
- PLUT, DUŠAN** (2014): *Ekosocializem ali barbarstvo*. Ljubljana: TRS.
- RIDGEWAY, JAMES** (1971): *The Politics of Ecology*. New York.
- SPETH, JAMES GUSTAVE AND PETER M. HAAS** (2006): *Global Environmental Governance*. Washington/Covelo/London: Island Press

Jerneja BRUMEN, MA

## REALISATION OF THE PRINCIPLE OF PUBLIC PARTICIPATION IN THE WATER GOVERNANCE IN THE REPUBLIC OF SLOVENIA: HOW TO GOVERN COMMON WATER RESOURCES?

**Abstract:** Water is common for all living creatures, as it is one of the fundamental conditions of life. However, in the anthropocentric world, where humanity manages waters, the responsibility for the state of the waters is ours. Ecological problems, common to all, have been the trigger of a qualitative change in the decision making process regarding the questions of nature and the protection, as well as quality of the environment, wherein all living creatures reside. The Aarhus Convention intervened into the environmental decision-making processes in a way, which systemically provided public participation in environmental decision-making processes. Public have the possibility to participate also in the water management and water governance processes. The present article emphasizes the importance of public participation in the field of water governance in the Republic of Slovenia. The principle of the public participation, stated in the Waters Act, is among the six fundamental principles of water governance, thus the present article focuses on the questions of what the public participation in the processes of water governance plan adoption until now, how participation of the public took place, and how the government (the competent ministry), which is the fundamental implementing party of the inclusion of the public into the process

of water governance, understands the public and cooperation with it. The author connects the public participation in the article with a polycentric common goods governance system, introduced by the political scientist and political economist Elinor Ostrom. For it was Ostrom who has shown that communication and trust between the members of the community are key for sensible natural goods governance (see Ostrom 1990). In the end, the article also briefly touches the events in 2016, which were related with the entry of the right to potable water into the constitution of the Republic of Slovenia and the role that the public had in it.

**Key words:** Water, public participation, water governance, state, polycentric governance, Elinor Ostrom.

### INTRODUCTION

Nowadays it is fashionable to talk about water as a key challenge for humanity in the near future. The lack of potable water, which supposedly threatens us in the near future, has even become a question of security (*cf.* Kajfež Bogataj 2014, 224–233).<sup>1</sup> The thesis, which predicts a lack of water is entirely logical, especially if we

---

<sup>1</sup> »Disputes over water on our planet are not a new phenomenon, but we may notice, that they are becoming ever more frequent and intense. There are numerous reasons for it, from the increase of the population on the planet, to the changes of lifestyle, especially diet, and constant economic growth, which is also »thirsty«. If we also add ever more obvious climate changes, the growing number of disputes is no surprise. In the entirety of the 19th century, there were 13 serious water related disputes, and in the 20th century, already 101. In as little as ten years of this century, there were already 108. Thereby the disputes are mostly between various nations by the same source of water or river basin. /.../ Some disputes end happily, other grow into crisis areas. A characteristic consequence of the water dispute are also refugees. There are multiple millions of people in the world now, which have become refugees due to a lack of water« (Kajfež Bogataj 2014, 225).

assume, that we will be using water in the way and the amount that it has been used in thus far, while the population will increase. Conclusions »*ceteris paribus*« thus lead us to the construction of a worst case scenario. Scenario writing is popular in this time, but imagining the worst case scenario does not bring about constructive suggestions, and contributes even less to constructive thinking.

In spite of the fact that the environmental movement has become global a while ago and in spite of numerous adopted measures, which were supposed to improve the »condition of the environment«, globally speaking, we are facing an unfavourable situation in the field of natural conditions, which enable our existence. Along with the natural conditions, i.e. conditions provided by Earth, enabling the most basic existence in the sense of survival, we manage to use the conditions we create ourselves, i.e. conditions originating from human actions, to further endanger the natural conditions of our own existence. *Lack of moderation* in the field of conditions, created by ourselves, generates numerous contradictions, which we do attempt to solve, but apparently we tackle them in an inappropriate way. There are of course many reasons for such a condition – from scientific ones to those, which are entirely practical in nature and are, as such, a fruit of poorly thought out decisions. Personally, I am of the opinion that the thing that most of these reasons have in

common is a chrematistic<sup>2</sup> view of nature and the underestimation of effects of poorly thought out actions. Numerous people underestimate the power of conditions, which we create ourselves (by acting into nature). Nature and its goods are all too often seen as strategic resources and a source that, in the name of development and an increase of economic growth, we exploit, which causes numerous ecological problems.

The stacked ecological problems, which affect living nature in general (and are thus common to people, animals, plants, etc.) set the demand for a rethinking of scientific concepts, as well as rethinking of decision-making processes as it was to this point. The field of waters is common to all living creatures, as water is a fundamental condition of life. But in the anthropocentric world, in which humanity manages waters, the responsibility for waters is on us. What we do with water and how we manage it is a matter requiring numerous answers. In the present article, I will thus focus only on the segment of decision making within the extensive area of water governance.

Political science as a science which, among other things, deals with the study of political action and decision making, can contribute mainly the thoughts on the adoption and implementation of decisions in the field of water

---

<sup>2</sup> Chrematistics is the opposite of economy, the goal of which is prosperity. Chrematistic deals in the accumulation of financial sources.

governance thus far. If I start with the first political science contribution to water management in Slovenia (see Lukšič and Bahor 2008)<sup>3</sup>, water management and water governance are slowly becoming a matter of political science thinking in the scope of interdisciplinary research of water governance. Considering that the water governance in Slovenia is a responsibility of the state, which is otherwise a classic political science concept, it is also meaningful to introduce the water management professionals and interested public to a few other political science concepts, which can give meaning to the political action in the field of water governance to this point and in the future. In the present article, I will thus focus on the importance of public<sup>4</sup> participation

---

<sup>3</sup> I stem from the article *Political reflection to water management in Slovenia* from the year 2008 (Lukšič and Bahor 2008), in which the authors discussed the reflection of relationships between the profession, politics and public in all three spheres of politics (policy-polity-politics) in the field of water management in Slovenia. In the article, the authors reflected on the structural relationships and the relationships between involved actors, based on those, to enable a view from the outside onto the communication and decision making process with the intention of enabling the water management profession to harmonise its actions in communication and decision making processes with structural change, which was created between the water management profession and politics.

<sup>4</sup> »The term »public« signifies two closely interrelated but not altogether identical phenomena: It means, first, that everything that appears in public can be seen and heard by everybody and has the widest possible publicity. For us, appearance – something that is being seen and heard by others as well as by ourselves – constitutes reality« (Arendt 1998, 50). »Second, the term »public« signifies the world itself, in so far as it is common to all of us and distinguished from our privately owned place in it« (Arendt 1998, 52). In the public, there is a plurality. Without

and the significance of the polycentric system of governance, which, in the research field of commons, was introduced by the political scientist and political economist Elinor Ostrom. For it was Ostrom who has shown that communication and trust between the members of the community are key for sensible natural goods governance (see Ostrom 1990). In the thoughts I will, at the end, also briefly touch the events in 2016, which were related with the entry of the right to potable water into the constitution of the Republic of Slovenia.

### Aarhus Convention, European Water Directive, Waters Act and Public Participation

Political science understands the public as indispensable for the functioning of democracy. In public, citizens *critically discuss* the functioning of the authorities. Participation of the public in the environmental field was most directly enabled by the Aarhus Convention. The Aarhus Convention or the *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters* »is a normative act, which allows the

---

plurality, there actually is no public or fields of common matters. The plurality is also the condition of political action, which was very thoroughly studied in political thought by Hannah Arendt (see Arendt 1998). Arendt thus understood politics as something, which, in the form of words and actions exists among people. Since politics happens in the field of human matters, its fundamental characteristic is that it exists as a possibility. A possibility means that the field of human matters can always be rearranged anew, when we decide for it.



public and environmental actors entry into communications processes, /.../, so that they can discuss politics, programmes, plans, normative acts, etc., relating to the environment» (Lukšič 2002, 329). The Republic of Slovenia ratified the Aarhus Convention in 2004 with the Act on Ratification of Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. Its historical significance is that it intervened into the decision making and access to regarding environmental matters in a way that gave those, who were excluded before its adoption, a systemic possibility to co-decide for the common good. Ecological problems, which are common to everyone, have thus caused a qualitative change in the process of decision making when matters of nature and quality of the environment for all living beings are concerned.

By ratifying the Aarhus Convention, a request was also triggered in the political system of the Republic of Slovenia regarding a change of the way the political institutions function. Inclusion of the citizens, as well as the affected and / or organised public into the processes of decision making and implementation in the field of environment has thus become a legal norm. Along with the provisions of the Aarhus Convention, public participation is also a part of several other normative acts, which manage environmental protection in the Republic of Slovenia. The principle of public participation

in the Waters Act is counted among six *fundamental principles* of water governance, defined in Article three of the Act. In light of the goals of this present article, it is thus sensible to review what public participation in the processes of water governance plan adoption was to this day, how public participation took place, and how the government (the competent ministry), which is the fundamental implementing party of the inclusion of the public into the process of water governance, understands the public and cooperation with it.

The Waters Act (ZV-1) was adopted in 2002. To this day, it was already changed several times. Along with Article 58, which defines public participation in the adoption of water governance plans in more detail, the Waters Act (ZV-1) also planned active participation in basins and catchment areas in the form of Waters Conferences. These Waters Conferences and their functioning were defined by Articles 163 to 173. The purpose of founding water conferences was to provide local communities, water rights owners, and non-governmental organisations with influence on water governance. Within the scope of waters conferences, a representative body would also be formed - the Water Council. The Water Council in a particular area (e.g. river basin) would consist of: ten representatives of local communities in an individual area, from Article 52 of the Waters Act; ten representatives of water rights owners, who

have rights in this area, and five representatives of non-governmental water and environmental protection related organisations, registered with the competent authority in the area. The water councils would follow the implementation of the national water governance programme, participate in the preparation of water governance plans (compliant with provisions of Article 51 of the ZV-1) and would also follow the implementation of water governance plans. The councils had also been legally enabled to adopt positions and provided with the possibility to submit direct initiatives to the Government of the Republic of Slovenia.

The Waters Act, in the part where it planned the establishment of Water Conferences and Water Councils, greatly adapted to the *European Water Directive*<sup>5</sup>. In the review of professional literature, I have, among other things, encountered the thought that »this part of the act has still not come to life« (Mikoš 2011, 522).<sup>6</sup> In 2011 or nine years after the adoption of the Waters Act, a part of Act which systemically enabled an active public participation, thus was not even carried out and implemented. Instead of an immediately ensured implementation of this part of the act, we were faced with an entirely

senseless decision as, in 2012, the very Articles were removed from the Waters Act (Articles 163 - 173), those Articles, which allowed for the influence of local communities, holders of water rights and non-governmental organisations from the environment protection field onto the water governance. Instead of a systemically established active public participation, we thus face an inhibition of public participation in the field of water governance, whereby it has to be emphasized, that certain individuals noticed a difficult inclusion of the public also in the scope of the legally prescribed public participation, as defined by Article 58 of the Waters Act (*cf.* Banovec 2014, 45–46). In light of the awareness that the fundamental responsible entity for the public participation in the water governance process is the Ministry of the Environment and Spatial Planning, it is sensible to analytically review the activities to this point and results of public participation in the processes of the preparation of water governance plans.

## HOW PUBLIC PARTICIPATION TOOK PLACE THUS FAR?

Compliant with the European Water Directive, which represents a framework for sustainable water management with the goal that, by the year 2015, a good status of all waters would be achieved, the Republic of Slovenia had to prepare two water governance plans thus far,

---

<sup>5</sup> EU Water Framework Directive or *Directive 2000/60/ES of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.*

<sup>6</sup> I have found the same opinion - that the "Water Councils did not come to life" – also in the interview with an expert on waters, prof. dr. Brilly (see Brilly 2014).

for the river basin districts of Danube and the Adriatic Sea, as, in the first period (by the year 2015), it did not achieve its goals. The first national water management plan related to the time period from 2009 to 2015, while the second water management plan related to the time period from 2015 to 2021.

In the evaluation of the public participation in the preparation of water governance plans thus far, it is important to primarily emphasize the role of the »Pilot Project Krka« (*Technical aid in the preparation of the pilot plan for water management in the Krka area*<sup>7</sup>), which, among others, »tested the model for the inclusion of the public in the process of water governance plan preparation« (Vodopivec 2005, 136). In the scope of this pilot project, »considerable attention was paid to the process of informing, consulting, and participation of the public in the entirety of planning« (Vodopivec 2005, 137). In the context of activities of the pilot projects, »methods and tools of notification, consulting

---

<sup>7</sup> The project was carried out by a consortium (Hidroinženiring d.o.o., IEI d.o.o. and ECORYS – NEI b.v.), with which the Ministry of the Environment and Spatial Planning signed a contract in 2004. The Krka Project lasted 22 months and was concluded in 2006. Funding of the pilot project was mostly from European funds. The project consisted of two phases: 1) testing of the new approach to water governance compliant with the demands of the Water Directive, 2) preparation of a general solution of removal and purification of municipal waste waters in the Krka basin, compliant with the Directive on Removal and Purification of Municipal Waste Waters and the Operative Programme of Removal and Purification of Municipal Waste Waters and the preparation of technical and investment documentation for chosen investment projects (see Vodopivec 2005).

role of the public, and the encouragement of its participation« were tested (Pek, Drapal et al. 2005, 140). In the context of the project, a preparation of a manual for informing, consulting and public participation in the process of comprehensive planning was also planned.

At the Mišič Water Day in 2005, the experience of the Pilot Project Krka was presented, relating to notification, consulting and public participation. The involvement of the public in the scope of the project was divided into both active and lower levels of involvement in the Krka basin, the latter of which consists of notification and communication (Pek, Drapal et al 2005, 143). While the public is commonly in a passive position when it comes to notification and communication, its role in active inclusion is to participate in the shaping of content and influencing the final decision making. A few workshops were carried out, intended for a discussion regarding the key problems of water governance and the seeking of potential solutions for them, to decide a programme of measures. The contractors carried out different tools of notification and communication (project website, informative newspaper, etc.). All activities of the Pilot Project Krka, relating to notification, consultation and public participation were intended for the project group to test methods and tools as support to the future implementation of the European Water Directive (Pek Drapal et al 2005, 144). Intermediary experience were described with the following words by the co-

operators of the project which were working on public participation: »Experience of the Pilot Project Krka thus far show an interest, an appropriate level of knowledge, and awareness of the local stakeholders of the importance of the problematic in question, as well as preparedness to cooperate in the search of potential solutions. Along with this, the principles and tools of involvement and participation of the public were also widely supported among the stakeholders« (Pek Drapal et al 2005, 144).

After that, at the Mišič Water Day of 2007, the article *First Activities and Experiences of Consulting the Stakeholders in the Preparation of Professional Foundations WGP 2009 in Slovenia* (Marovt and Bizjak 2007)<sup>8</sup> was presented. In it, the authors presented the first activities, content, results and experience of cooperation with the public in the

---

<sup>8</sup> As a political scientist, I am critical of the concept of »stakeholders«. The »stakeholder« concept stems from management and is, as a substitute of other concepts, which emphasise democratic involvement, ever more popular in the political discourse. »At first sight, the expression »stakeholders« is a welcome new concept, which emphasises the desire and will for democratic involvement in public decisions. The Slovenian political discourse thus follows the establishment of the term »stakeholders« in academic and political use at the international level, mainly in the context of ideas on new forms of political regime, united in the framework of governance and suggestions of inclusion in the scope of the so called deliberative democracy. However, the development and use of the concept, both in the academic and political discourse, must primarily be viewed from the critical perspective, as this new concept introduces a confusion and opportunities for legitimisation of subjects who, in the scope of »old« expressions (e.g. citizens, public, civil society) would not be understood as legitimate participants in the democratic decision making as such« (Turnšek Hančič 2011, 148–149).

preparation of professional foundations for the Water Governance Plan (WGP) 2009 - 2015.<sup>9</sup> The role of the public was once again divided onto three levels: notification, consultation and active involvement (*cf.* Marovt and Bizjak 2007, 66–68). Considering the valid normative regime, a significant shortcoming of the approach, used and described by the article authors, was the use of presumably general rule »that it is not possible to communicate about everything with everyone, which means that a thorough planning if required in regards to which content are intended for which stakeholders and which stakeholders may participate in the shaping of particular content« (Marovt and Bizjak 2007, 66).<sup>10</sup> The authors also stated that European guidelines were used in

---

<sup>9</sup> Professional foundations for the needs of the preparation of a water governance plan for water areas of Danube and the Adriatic Sea were also prepared by the Institute for Water of the Republic of Slovenia. »With the purpose of comprehensiveness of the process and professional foundations, in cooperation with the Geological Survey of Slovenia and external experts, Pristop Consensus carried out the first activities of consultations with stakeholders« (Marovt and Bizjak 2007, 65).

<sup>10</sup> The stated »rule« stems from a lack of understanding of the importance and meaning of the public. It is most likely derived from the experience, that reaching agreement in plurality (among many) is time consuming. Political action is also an aphoretic activity and can therefore be »torturous« for the participant, since a lot of time is required. »Exasperation with the threefold frustration of action – the unpredictability of its outcome, the irreversibility of the process, and the anonymity of its authors – is almost as old as recorded history. /.../ The calamities of action all arise from the human condition of plurality, which is the condition *sine qua non* for that space of appearance which is the public realm. Hence the attempt to do away with this plurality is always tantamount to the abolition of the public realm itself« (Arendt 1998, 220).

the planning and implementation. »According to European guidelines, notification and consultation are the means which should slowly begin to represent an established component of the process of water planning, while the European guidelines merely recommend an active inclusion of stakeholders« (Marovt and Bizjak 2007, 66).

The European commission truly did prepare guidelines on public participation in the planning of water management, wherein it wrote »Where consulting is successful, the public and interested parties may actively participate in the development and implementation of plans for catchment areas. This leads to joint decision making, whereby both sides bear responsibility for the results of the plan. The Directive does not strictly request an active participation in the development and joint decision making, but such activities are considered a best practice« (WISE 2008, 2). Not only do numerous cases prove, that early and broad inclusion of the public brings good results, the use of the stated guideline after the adoption of the Aarhus Convention does not make sense any more, since the adoption of the Aarhus Convention intervened into the acquis in a »horizontal« manner.<sup>11</sup> The European Commission also, in the mentioned guideline,

---

<sup>11</sup> »An environmental regulation is of a horizontal nature if its rules are so general, that it is not only used in a narrowly defined area, but must be complied with and used in all areas of environment protection« (Šantej 2013, 258). A regulation like this is »horizontal« because it reaches past narrow sector yards and must be carried out by everyone.

stated that the »water directive admits, that its success depends on tight cooperation with the public and interest groups at the local level, and their involvement in the key decisions« (WISE 2008, 2), thus it makes no sense to inhibit the public's participation. **The state should thus have to strive towards an active inclusion of the public and should introduce suitable consulting mechanisms for water areas or river basins, which would allow constant communication.** Regardless of the lacking approach, however, the results of the workshop »Problematic of the Water Environment in River Basins and Catchment Areas in Slovenia« have shown that consulting and cooperation are required and useful (Marovt and Bizjak 2007, 71). The results have also shown »general satisfaction and approval of the preparation and implementation of the consulting workshop, and have also shown a high degree of preparedness for further cooperation« (Marovt and Bizjak 2007, 70).

The same authors then, in 2008, at the Mišič Water Day, presented an article called *A Review of Activities of Consulting with Stakeholders in 2008 for the Creation of Professional Foundations for the Preparation of NUV 2009 in Slovenia* (see Marovt and Bizjak 2008). The activities were focused on consultations with stakeholders at the professional level in the light of the preparation of the Water Management Plan for the water areas of Danube and the Adriatic Sea. »At professional consultations, the stakeholders



went over content of water management fields: safety, management and use of water, for surface water and groundwater« (Marovt and Bizjak 2008, 146). »The central content of 2008 was represented by the creation of professional foundations for the programmes of cost efficient measures« (Marovt and Bizjak 2008, 148). A special mention needs to be made of the fact that 83.6 percent of professional consultation participants in 2008 replied, »that they wish to cooperate in further water planning process and the preparation of water management plans, /.../ whereby they favour consultations at a local level (catchment areas, river basins, parts of basins)« (Marovt and Bizjak 2008, 152). It was also shown that »the stakeholders in local environment follow and know the characteristics of an individual basin, part of basin or catchment area better, both in terms of surface water and groundwater« (Marovt in Bizjak 2008, 147).<sup>12</sup>

After the activities in 2008, the year 2010 saw the »organisation of regional consultations for a Water Management Plan with the purpose of promotion of the plan, exploration of local problematic, and harmonisation of planned measures, as well as deciding on their priority role« (Rejec Brancelj et al 2011, 15). «Good

representation of various interest groups, related to water management, also brought about good results - defined in more detail, both locally and in terms of content« (Rejec Brancelj et al 2011, 16). So the benefit of the local inspection was once again emphasized. In the scope of the preparation of the Water Management Plan in the water areas of the Adriatic Sea and Danube 2015 - 2021, in October and November 2015, eight regional consultations were held (for river basins and water catchment areas), and three public sector-based consultations.

»Only in July of 2011 was, with a year and a half of delay, the Regulation on the Water Management Plan for the Areas of Danube and the Adriatic Sea adopted, /.../, introducing a NUV for the period 2009-2015« (Kodre and Stanič Racman 2013, 83). Slovenia was thus quite a bit late in the implementation of the European Water Directive. Thus the identified condition, that we have not achieved a good state of all water bodies by 2015<sup>13</sup>, could not have been a surprise. From the perspective of political science, this state can also be explained by the fact that there was no active body (e.g. Water Councils), which would thoroughly follow the implementation of the water directive or the Water Act.<sup>14</sup> Also, from the

---

<sup>12</sup> The Water Institute of the Republic of Slovenia also set up an organisational structure for the operation of the Water Councils according to the Water Act. At this point, the deletion of articles (163-173) from the Water Act is shown as especially senseless, since Water Councils as a consulting mechanism would also include the representatives of local communities.

---

<sup>13</sup> «A considerable improvement of the state of water bodies in the RS in the first planning period 2009 - 2015 was not achieved» (Stanič Racman et al 2014, 1).

<sup>14</sup> Here, the ignorant role of the state regarding a part of the Water Act, relating to the establishment of the Water Councils, is



perspective of political science, it is possible to add that in spite of a high level of preparedness of the involved public for further cooperation, said cooperation could not be noticed. All accessible reports on the implementation of cooperation with the public that I have reviewed mainly shared the fact that they focus on reporting the number of participants, number of submitted comments, and the structure of participants by fields (government offices, non-governmental organisations, economy, agriculture, etc.), expressed in percentages, but do not focus sufficiently onto the analytically oriented processing of recurring problems. The Water Management Plan in the water areas of Danube and the Adriatic Sea (relating to both periods) also lack a report on how the submitter comments and suggestions of the public actually influenced the final text, as required by the European Water Directive.

In regards to the activities of cooperation with the public, carried out in the past, we can see only occasional cooperation with the public, which was, however, not predictable in terms of time. Through time, the structure of the carried out workshops changed, just as the entity, carrying out the activities, changed. Accessible descriptions of activities and freely accessible reports show,

---

once again shown as very senseless, as the organised Water Councils would encourage the executive branch of the government to solve problems in the field of water management and thus also contribute to an earlier implementation of the European Water Directive.

that the carried out activities were analysed in quantitative terms, by stating numbers first, without an analytical insight into how the public or the carried out activities actually influence the executive branch of the government, which adopts water management plans. I also have not found an analytical insight into which conflicts are at the forefront in the reviewed reports, which sectors disagree with each other, why they disagree, and what are the actual problems at the local level. I also have not noticed an analysis on what the trust is between involved subjects and what potential agreements were made. Here, it is once again shown, that Water Councils could represent a basic communication form, which the public could constantly direct its high level of preparedness for cooperation in water planning to, meaning that the communication with the public would be reinforced. Water Councils could also represent a form, through which the public would be allowed to send the authorities critical positions regarding water management. But, most importantly: Water Councils will be organised permanently, which means, that public participation would not be left over to chaos. The advantages of cooperative approaches are numerous, as underlined by a number of scientific studies. In the following part of the article, I shall only list some of them, but significant ones from the perspective of political sciences.

## SCIENTIFIC ARGUMENTS FOR A COOPERATIVE APPROACH IN GOVERNANCE OF A COMMON NATURAL GOOD

Elinor Ostrom saw that there is a dynamic relationship between man's interventions and the response of nature, whereby, to **maintain a common natural good** (e.g. water), **communication and trust between the members of the community are key**. Cooperative approaches are slowly but steadily gaining attention. The slow pace of this »process of acceptance« is generally understandable considering the fact, that the article of the American biologist Garrett Hardin, titled *Tragedy of the Commons* (Hardin 1968), considerably marked the period after its publishing. Hardin's article, wherein he wrote, that the exploitation of an asset which is available unlimitedly to everyone, due to the egotistical actions of individuals, unavoidably leads to the disappearance of this asset, achieved an exceptional response. Maximisation of own profit is, in Hardin's theory, a rational choice of each individual, which later leads to the damage for the entire community. Between 1968 and 1990, Hardin's article was quite influential. Biologists Barrett and Mabry, e.g., have warned, that Hardin's article had, for a while, the greatest influence on the professional training of American biologists (Barret and Mabry 2002). Yet, Hardin's article was not only one of the most commonly quoted scientific articles in the second half of the twentieth century, but also triggered numerous debates,

both in the field of natural sciences, as well as in the field of social sciences. It also influenced the formation of a new, multidisciplinary scientific field, which deals with the research of commons, or common properties.

The theory »Tragedy of the Commons« was then, in 1990, relativised by the political scientist and political economist Elinor Ostrom with the work *Governing the Commons* (Ostrom 1990), for which she also received the Nobel Prize for economy in 2009, in the field of economic governance.<sup>15</sup> Hardin based his theory on biological laws, while Ostrom also included political and economic sciences into the analysis and, on a collection of empirical examples, mainly from Asia, Africa and South America, **proved, that the community which governs a natural good, through communication, surpasses selfish tendencies of individuals and reaches an agreement on the use of the natural wealth in a way, where the latter is not under threat**. Ostrom analysed both cases of communities, which successfully organise and use the common good, as well as the cases where they fail to do so. In comparison with Hardin's theory »Tragedy of the Commons«, Ostrom scientifically proved, that commons are not always doomed to destruction, thus showing a possibility of an alternative. Cases of governance of the commons, which she

---

<sup>15</sup> The concept of »governance« is, in political and communications sciences, more and more often translated to Slovenian as »vladovanje«, as suggested by the academic dr. Slavko Splichal (cf. Bačlija Brajnik et al 2013).

analysed, dismissed the idea of presumably only two possibilities - privatisation or nationalisation - as she offered an alternative, or a third possibility for the governance of commons.

Ostrom has proven, that neither nature nor human suffer damage, if the natural wealth is governed by the community, whereby an important role is played by the polycentric governance system, which means, that the governance of a single common good is not decided upon from a single centre of power. It is also necessary to emphasize that, in the case of governance to a common, said governance means more than management alone. »Governance requires making decisions, not only about what to produce, how much and how we will produce it or, in the case of natural goods, how much of them we will use and with what technology, as it is the case for management, but also **who has the right to decide about our natural resources and how the roles or laws on the use of these goods will be adopted.** /.../ Besides the market and the state, there is also a third way in which people decide on how to use their natural resources. Communities of natural resource users have the knowledge and wishes to form rules for the use of their natural resources« (Dolšak 2012). Governance is thus qualitatively different from management.

The possibility of an alternative to the two extremes - complete nationalisation or complete privatisation - opens a new subject for thought in the field of water management. It is

obvious, that the existing form of authority in the field of water management, which operates mainly as an administrative apparatus without insight into the actual state at the local level, indirectly makes demands for a transformation of the understanding of authority in this field. Should the Water Councils function, they could at least partly transform the existing form of authority. In the scope of the Water Councils, the public would have an actual place, based on which it would have both the possibility and the duty to co-shape the politics regarding waters. In this place, the water politics could be formed among people. In the scope of further thought on how to manage the participation of the public in the field of water management, we can also use the experience of co-managing natural resources, which is (was) present on the territory of Slovenia.<sup>16</sup>

### **A NEW STORY: THE ENTRY OF THE RIGHT TO POTABLE WATER INTO THE CONSTITUTION AND THE ROLE OF THE PEOPLE**

By entering the right to potable water into the Constitution, the Republic of Slovenia became one of the few countries in the world which entered said right into the most important legal act of the state. If, at this point, we set aside the

---

<sup>16</sup> As relevant for thought, I would like to emphasize the monograph *Co-management of Natural Resources: Village Communities and Related Forms of Common Property and Co-management*, edited by dr. Romina Rodela.

dominant *presentation* in the media and public - the action of »patting each other on the back«, as this is thought to be a bold step - we face a certain absence of broader thought as to why and how we even got so far, that the members of parliament adopted a political decision, with the help of which we will supposedly »be protected from the danger of the lack of potable water in the future«. Numerous individuals were guided by fear in the adoption of this decision, fear of privatisation of water sources and privatisation of water supply. More precisely, fear that the water sources would be claimed by multinational companies, which would begin to market the water as trade goods.

On the side, and unanswered, is the question regarding how, for our thoughts and adoption of the decision, significant were the scenarios, predicting that potable water will become a problem in the future, instead of the cause of such a condition being significant for our thoughts instead. That is, instead of questioning the way of life that we live, questioning why and how this way of life endangers the supply of potable water at our disposal, we decided to enter the right to potable water into the Constitution. A dead letter on paper certainly will not be able to preserve the required groundwater supplies, if, along with the entry, we do not change our understanding of existence as well. If we look at the entry of the right to potable water into the Constitution from an even broader perspective, this entry is,

of course, of an entirely anthropocentric nature, as, according to the already adopted diction in the Constitution, the use of water is primarily intended for humans. The field of waters, on the other hand, is a much broader field. Water is extremely important, not only for humans, but also for all other living beings. Bodies of water also have an important ecosystem role.

The entry of the right to potable water into the constitution was designated by many as a very important action, but on the other hand it is necessary to warn that this is an entirely abstract action and that it would be good if, at the same time, we asked ourselves what the dominant understanding of the existence is, to make the question of potable water so problematic in the future, that we were supposedly forced to enter the right to potable water into the highest legal act of the state. Instead of attempting to change the way of life with which we reduce and consequentially endanger the potable water supplies, we decided to take one of the most fundamental natural conditions of our existence and enter it into the highest legal act of the state. This action of course does not release us from further thought regarding our existence, but additionally encourages us to do so, as the entry into the Constitution communicates our principal standpoint. A more important question thereby is, of course, as already warned of by many before me, how we will ensure the realisation of this right or how we will plan

and implement it in legislation (in legal and sublegal acts), whereby a good condition of all bodies of water should be in the first place, as they consequentially also ensure potable water (along with all other ecosystem functions).

The legislation is implemented by the people so, from a political science perspective, it is extremely important how we plan the implementation. According to the Aarhus Convention, the public must be involved in the entire process - both preparation and implementation. In regards to previous experience, which has shown a high level of preparedness for cooperation, there should be no problems. The politics of governance of water commons can be created by all of us, as we have the possibility to act politically, e.g., in the scope of the civil society. Regardless of the critical thinking in the previous paragraph, however, one must say that it was civil initiative which offered the public a petition for the *»Entry of the Inalienable Right to Water into the Constitution«*, thus proving, that there are numerous people among us, who adopted the right to potable water as extremely important in their consciousness. The petition, it has to be said, was signed by numerous citizens in an extremely short time. As a political scientist, the latter did not surprise me as much, as the level of development of environmental awareness among the citizens, as shown by the opinion polls in Slovenia, is high.<sup>17</sup>

---

<sup>17</sup> But actual environmental behaviour does not completely follow this. »There is a significant difference between declarative

Regardless of some expressed second thoughts, one has to say that, in the climate of mass distrust and dissatisfaction, the entry of the right to potable water into the constitution is a story, which has indicated awareness and engagement of the public, as well as the ability of various subjects to cooperate. The considerable support of the public, too, is notable, or the message of the public, that clean water is our priority. In this spirit, the field of water management is also open for new possibilities and potential changes, which the subjects can, after all, suggest to the legislator too.

## CONCLUSIONS

The Waters Act (ZV-1) gave the public a possibility of direct cooperation, which would be realised primarily in the Water Councils, as the councils would be a permanently organised counselling mechanism. First, the executive branch of the government did not ensure that this part of the Waters Act was implemented and then, the legislative branch, in 2012, simply deleted the Articles, directly

---

expressions of 'clean environment' and actual 'environmental actions'« (Gantar 2004, 302), which is also complemented by the conclusion, that there is a considerable »diference between declarative and manifest level of ecological awareness« (Kos 2004, 319). Kos, based on the research of the Slovenian public opinion in regards to the environment, additionally emphasizes, that we are dealing with two different qualities: »1) high level of preparedness of the public to solve the ecological problematic and 2) a heavily »simplified« attitude towards the ecological problematic« (Kos 2004, 312).



relating to such work, from the Act. Some water management experts have stated that this part of the Act simply »did not come to life«. As a political scientist, I can say that it is improper to use naturalist comparisons for such a severe violation of the *acquis*, as, by explaining such actions with the laws of the nature, we shift the blame of responsibility and are not aware that responsible actions could lead matters into a different direction. Failure to implement the law should result in a search for political and civil responsibility, but not in the sense of looking for a scapegoat, but in the sense of preventing the recurrence of such mistakes in the future, as cooperation with the public must be managed in an appropriate way. Not only due to the *acquis* and legal provisions, but mainly due to an extremely high degree of preparedness of the public to participate in the process of water management planning, as confirmed by activities, carried out in the past.

Considering that the Water Councils never actually operated, we cannot assess the operation of the councils. The only thing we can say is that the councils, in terms of their function as planned by the law, would operate permanently and thus represent a consulting mechanism, which is mentioned also by the European guidelines. Since, however, this part of the law was not carried out, we also lost a »supervisory body«, as the Water Councils would, among other things, thoroughly follow the implementation

of the water management plan. The Water Councils would thus be a permanently formed representative body, which would not operate for half a year before the adoption of the new water management plan, but would be permanent. They would be formed in every major basin, whereby the processing of local problematic would also be ensured, and would be elected. As bodies, which are bound to an area, they would also represent constant contact of the executive branch of the government (ministry) with the (local) public, which the authority would either way have to ensure due to the provisions of the Aarhus Convention. The political responsibility for the failure of Water Council establishment is upon all involved governments, both those, which didn't ensure the implementation of this part of the law, as well as that, which struck essential articles from the law. I also ascribe a part of responsibility to the Ministry of Environment and Spatial Planning, which is responsible for suitable preparation of the means of water management, so it could have had a more proactive role.

In spite of the deletion of articles planning a systemic provision and suitable funding of public cooperation, from the law, there is a legally binding norm, which still enables the participation of the public. The Aarhus Convention is important as, in its nature, it is systemic and horizontally intervenes into all the fields of environmental decision making



of the executive branch of the government. In the field of human matters, there is always a possibility, that existing balance of political power may change. As history teaches us, persistence and a broad public support are required, which, however, are not difficult to acquire in the case of a common good. The power of human words and actions »here and now« always exists as a possibility, which we may realise or not. Thereby it is important to explicitly emphasize that political subjects aren't only political parties. Political subjects are also the professionals, the public, the civil society, the non-governmental organisations, etc., which, due to the provisions of the Aarhus Convention, enjoy a special support when it comes to the environmental matters. These subjects thus always have a possibility to change the existing balance of political power.

The water management profession can learn from this story - in the water management field, they are not left to their own devices. Even if the country ascribes a smaller role to the water management profession than the profession is ready to assume (Lukšič in Bahor 2008), the professional public may organise itself as a part of the civil society and thus become even more actively involved in the water management planning. It can also attempt to suggest a new inclusion of the deleted articles into the law, so that the operation of the Water Councils as consulting mechanisms is also appropriately

funded. Then it can warn the public about the beginning of the carrying out of this part of the law, relating to the participation of the public. The later is not only sensible due to ensuring that the provisions of the Aarhus convention are complied with, but also due to the opinion that, in this field, there is a lot of corruption (Brilly 2014). The Water Councils as representative bodies, which could provide the government with direct initiatives regarding water management would, once again, make a lot of sense at this point, as the supervisory body, which constantly follows the event in a particular field, can significantly help to prevent corruption as well. The practice up to this point can be changed if there is an awareness, that a suitable form of communication or permanent consulting mechanism will enable a discussion about the urgent problems of water management, which will enable a constructive participation of the public.

## LITERATURE

- ARENDE, H. (1998): *The Human Condition*, Second Edition. Chicago, London: The University of Chicago Press.
- BAČLIJA BRAJNIK, I., ČERV, G. IN TURNŠEK HANČIČ, M., (2013): *Governance: Government, governing, management or a new term »vladovanje«?* Družboslovne razprave, 29 (73), 99–119.
- BANOVEC, P. (2014): *Pomen sodelovanja javnosti na področju upravljanja voda in ključni elementi za njegovo uspešnost*. V: S. Cerkvenc in E. Rojnik, ur., *Vodni dnevi 2014, Zbornik referatov: simpozij z mednarodno udeležbo*, 15.-16. oktober 2014, Portorož, 43–50. Ljubljana: Slovensko društvo za zaščito voda.

- BARRETT, G. W. IN MABRY, K. E.** (2002): *Twentieth-century classic books and benchmark publications in biology*. BioScience, 52 (3), 282–286.
- BRILLY, M.** (2014): *Intervju: Dr. Mitja Brilly* [online]. Ljubljana: Dnevnik. Dostopno prek: <https://www.dnevnik.si/1042643464> [dostop 15. marec 2017].
- DOLŠAK, N.** (2012): *Intervju: Dr. Nives Dolšak, okoljska ekonomistka* [online]. Ljubljana: Delo – Sobotna priloga. Dostopno prek: <http://www.delo.si/zgodbe/sobotnapriloga/nives-dolsak-kar-so-naredili-ekologi-brez-meja-je-fenomenalno.html> [dostop 15. marec 2017].
- GANTAR, P.** (2004): *Nekaj pripomb k sociološkim vprašanjem okolja in okoljskih vrednot*. V: B. Malnar in I. Bernik ur., S Slovenkami in Slovenci na štiri oči: ob 70-letnici sociologa Nika Toša. Ljubljana: Fakulteta za družbene vede, IDV, CJMMK, 289–306.
- HARDIN, G.** (1968): *The Tragedy of the Commons*. Science, 162 (3859), 1243–1248.
- KAJFEŽ BOGATAJ, L.** (2014): *Planet Voda*. Ljubljana: Cankarjeva z.
- KODRE, N. IN STANIČ RACMAN, D.** (2013): *Vodna direktiva – Direktiva Evropskega parlamenta in Sveta 2000/60/ES z dne 23. oktobra 2000 o določitvi okvira za ukrepe Skupnosti na področju vodne politike*. V: L. Štravs ur., Direktive EU s področja upravljanja voda. Ljubljana: Uradni list Republike Slovenije, 53–88.
- KOS, D.** (2004): *Javno mnenje o okolju*. V: B. Malnar in I. Bernik ur., S Slovenkami in Slovenci na štiri oči: ob 70-letnici sociologa Nika Toša. Ljubljana: Fakulteta za družbene vede, IDV, CJMMK, 307–320.
- LUKŠIČ, A. A.** (2002): *Reflection on Aarhus convention from the political science perspective*. Teorija in praksa, 39 (3), 321–330.
- LUKŠIČ, A. A. IN BAHOR, M.** (2008): *Political reflection to water management in Slovenia*. V: L. Globevnik ur., Stanje in perspektive ravnanja z vodo v Sloveniji. Celje: Društvo vodarjev Slovenije, 60–67.
- MAROV, L. IN BIZJAK, A.** (2007): *Prve aktivnosti in izkušnje posvetovanja z deležniki pri pripravi strokovnih podlag NUV 2009 v Sloveniji*. V: Zbornik referatov/18. Mišičev vodarski dan, 10. december 2007, Maribor. Maribor: Vodnogospodarski biro, 65–72.
- MAROV, L. IN BIZJAK, A.** (2008): *Pregled aktivnosti posvetovanja z deležniki v letu 2008 pri izdelavi strokovnih podlag za pripravo NUV 2009 v Sloveniji*. V: Zbornik referatov/19. Mišičev vodarski dan, 8. december 2008, Maribor. Maribor: Vodnogospodarski biro, 146–153.
- MIKOŠ, M.** (2011): *Integrated water management and regionalisation of the Republic of Slovenia*. Geodetski vestnik, 55 (3), 518–529.
- OSTROM, E.** (1990): *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, New York: Cambridge University Press.
- PEK DRAPAL, D., MAROV, L. IN STROSSER, P.** (2005): *Obveščanje, posvetovanje in vključevanje javnosti: implementacija slovenskega zakona o vodah in okvirne evropske vodne direktive*. V: Zbornik referatov/16. Mišičev vodarski dan, 9. december 2005, Maribor. Maribor: Vodnogospodarski biro, 140–145.
- REJEC BRANCELJ, I., DOBNIKAR-TEHOVNIK, M. IN UHAN, J.** (2011): *Key Features of the National Water Management Plan for 2009–2015 and Implementing the Water Directive*. V: J. Volfand ur., Upravljanje voda v Sloveniji. Celje: Fit media, 8–19.
- RODELA, R.** ur. (2012): *Soupravljanje naravnih virov: vaške skupnosti in sorodne oblike skupne lastnine in skupnega upravljanja*. Wageningen: Wageningen University and Research Centre.
- STANIČ RACMAN, D., MOHORKO, T., URBANIČ, G., PETELIN, Š., ĐUROVIČ, B., DOBNIKAR TEHOVNIK, M., UHAN, J., CVITANIČ, I. IN ROTAR, B.** (2014): *Priprava načrta upravljanja voda za vodni območji Donave in Jadranskega morja 2015–2021*. V: Zbornik referatov/25. Mišičev vodarski dan, 4. december 2014, Maribor. Maribor: Vodnogospodarski biro, 1–11.
- ŠANTEJ, B.** (2013): *Mednarodne pogodbe na področju upravljanja voda*. V: L. Štravs ur., Direktive EU s področja upravljanja voda. Ljubljana: Uradni list Republike Slovenije, 255–265.
- TURNŠEK HANČIČ, M.** (2011): *The Pitfalls of Newspeak: Critical Reflections on the Transfer of the Term »Stakeholders« from Economic to Political Discourse*. Časopis za kritiko znanosti, 39 (244), 148–156.
- VODOPIVEC, N.** (2005): *Pilotni projekt Krka*. V: Zbornik referatov/16. Mišičev vodarski dan, 9. december 2005, Maribor. Maribor: Vodnogospodarski biro, 133–139.
- WISE** (2008): *Obvestilo o vodi številka 12. Skupna naloga: sodelovanje javnosti pri načrtovanju upravljanja povodij* [online]. Dostopno prek: <http://ec.europa.eu/environment/water/participation/pdf/waternotes/WN12-Participation-SL.pdf> [dostop 15. marec 2017].

† Toni PUSTOVRH, PhD  
Assoc. Prof. Andrej A. LUKŠIČ, PhD

## RISK TECHNOLOGIES AND CONTEMPORARY SOCIETAL CHALLENGES: GEOENGINEER- ING IN THE RISK SOCIETY

**Abstract:** The paper provides an introduction to the issue of human-caused climate change, and the social, political and technological developments that have led to the development and spread of ideas about geoengineering interventions, which could be used to mitigate the expected climate change. At the same time, it places geoengineering, which is defined as the engineering of the environment on a large scale with the aim of counteracting the effects of changes in atmospheric chemistry, into the context of the risk society and technological attempts to solve contemporary problems, which are at least partly of socio-cultural, not merely of technical or natural origin. The central part is devoted to the analysis, which comprises the overview and categorization of each of the proposed geoengineering techniques in relation to the mechanism of its effect, the anticipated theoretical efficiency to reduce the expected global warming, and the possible unintended negative consequences. It also discusses the potential of the examined geoengineering techniques for deliberate hostile use in the sense of dual-use technologies. The conclusion summarizes the findings of the analysis and identifies the least risky geoengineering techniques. As can be seen, the techniques with the lowest known risks are those that operate on the longest time scales and are able to offset only a small percentage of the estimated global warming, which means that they can act only as a support to mitigation measures. It also provides a reflection on the place of technology and risks in the risk society, and on the risks of commercial geoengineering,

which could, through the mechanisms of the post-academic science model, lead to the normalization and the implementation of the geoengineering techniques with the greatest potential side effects. Finally, it further defines the potential role of geoengineering in the context of global catastrophic environmental change and mass extinctions that have occurred throughout the geological history of life on Earth.

**Keywords:** risk society, risk technologies, geoengineering, dual use, global warming, commercialization

### INTRODUCTION

In the first decade of the 21st century, the research question concerning modern climate change has been transformed into one of the central and most topical themes in the political arena, the public and the scientific community. As every topic that manages to emerge from the multitude of varied and competing issues into the spotlight of public and political attention, the issue of climate change also quickly became a tool in the hands of numerous stakeholders, who use different formulations of the topic achieve the implementation of their own objectives and interests. The cultural-political-scientific conglomerate that we simplistically and often inaccurately mention as the issue of climate change, is a multi-faceted and extremely complex construct (see Stehr and von Storch, 2009), the aspects of which affect the daily life and activities of individuals, associations, companies, institutions, societies and countries, and is also one of the few topics that has grown into an

international issue and a global problem, as the attempts to address it are linked to other priority topics of modern societies, such as economic growth, production and employment.

The current biosphere, which in this sense also includes all of human societies, is adapted to the existence and functioning in the mild, temperately humid climate, such as the one that predominated during the geological age of the Holocene (Steffen, 2009), which simultaneously encompasses the whole evolutionary path of the human species. Recent human activity, especially over the last hundred and fifty years, has deeply transformed the planetary environment and radically influenced a number of geophysical mechanisms, including the climate, which has prompted Paul Crutzen to propose that we start counting a new geological era in the history of the Earth, named the Anthropocene, due to the global human impact on the planet and the changes that this influence has caused from the 18th century onwards (Crutzen and Stoermer, 2000).

The relatively new research field of global catastrophic risks, which Bostrom and Ćirković (2009: 2) define as risks with the potential to cause serious damage to human welfare on a global scale, and that would, for example, include an event that caused the loss of ten million human lives and/or ten trillion dollars worth of economic damage, also includes climate change on the list of the unintentional consequences of human activity. And though

the existing data sample, which covers a time span of about a hundred and fifty years, indicates a long-term trend of rising average global air temperature near the surface, there is still considerable uncertainty about the linearity or nonlinearity of the pace of anthropogenically induced climate change (Frame and Allen, 2009: 273-276). In the context of public and political debate, the question that is mainly posed is the one which extreme weather events over the past few decades fall within the “normal” range of weather conditions and which might represent the first consequences of anthropogenic climate change (Stehr and von Storch, 2009: 23-26).

Some scientists and especially a number of politicians and other public figures have in recent years increasingly used the images of sudden and devastating climatic and environmental disasters arising from climate change, which supposedly inevitably prey on humanity in the near future. A large part of the scientific community also notes that the scenarios on the future course of climate change that were created by the Intergovernmental Panel on Climate Change, are worrying enough without apocalyptic representations of the future, and that the latter are likely to have the opposite effect of the desired behavioral changes in society (Frame and Allen, 2009: 266). The response with the purpose of reducing the extent and the impact of climate change is primarily formulated in the form of preventive mitigation climate policy, with the aim

of reducing the sources or enhancing the sinks of greenhouse gases. To a lesser extent, the focus is on adaptation climate policy, in the form of adjustments of natural or man-made systems to actual or expected climatic phenomena or their effects (Frame and Allen, 2009: 277), although there are strong arguments for a greater and more active role of adjustment policies because the success of mitigation policies so far has been too small (Stehr and von Storch, 2009: 129-134).

Due primarily to three factors, first, the scientifically substantiated severity of “merely” moderate and gradual climate change on the biosphere and human societies, second, the social and economic costs of mitigation policies, which would, in the event of a successful implementation result in serious disruptions and transformations in many industries, both among the employers and the employees, and finally, third, in the popular consciousness widespread, although premature and probably exaggerated notions of apocalyptic climate disasters, climate chaos, and climate and migration wars, it is possible that in order to maintain the current state of the climate and life, even radical engineering interventions into the dynamic mechanisms that generate the global climate of the Earth, will become more acceptable. This development is especially likely if the said interventions would give the uninformed citizen the (although false) impression that it would be possible to

circumvent the reduction measures and the substitution of the still dominant fossil energy sources with an ambitious technological project that would not jeopardize the average consumer lifestyles in economically developed countries. An additional factor is the fact that the carbon dioxide released into the atmosphere stays there and exerts its effects for several centuries before the natural carbon cycle moves it into other geophysical systems.

### **GEOENGINEERING AS A RISK TECHNOLOGY IN THE RISK SOCIETY**

The process mentioned above is geoengineering, specifically climate engineering, a concept which covers a range of proposals for the deliberate manipulation of natural climate with the purpose of countering the effects of global warming that results from greenhouse gas emissions. The idea of geoengineering has been elaborated and presented to the wider scientific community over the past few years as a temporary rescue measure in emergency situations, under the assumption that the existing efforts in the framework of reduction policy will not suffice to prevent or even acceptably mitigate the effects of human-induced global warming (Cascio, 2009b). While the original purpose of geoengineering as a measure to temporarily slow global warming was quite clearly defined, it nevertheless covers a range of very different technologies, and its entry into the broader field of scientific, political



and public discourse has, as is the case with any new idea, caused a profound transformation of the content and intent of the original concept.

The risk that arises in the case of the cultural transformations of a concept is primarily that geoengineering would become established in public and political life as an alternative to mitigation and adaptation policies rather than just one of the measures in the tripartite “MAG” (Mitigation, Adaptation, Geoengineering) approach to tackling global warming (IME 2009). Such a development could be triggered by both the stakeholders who are convinced of a catastrophic course of climate change, as the only option to slow down and mitigate climate changes, and by the stakeholders who otherwise deny the reality of anthropogenic climate change or opposing an active climate policy, but have huge stakes in maintaining the status quo regarding fossil fuels use, and would see a large scale engineering intervention as a better alternative to the loss of their existing positions and power sources. Additional risks that stem from geoengineering come from the uncertainty about the technical efficiency of the measures (see Lenton and Vaughan, 2009), insufficient knowledge about the complexity of the operation of the climate system and its feedback loops, and the potential for a dual use geo-engineering (see Cascio, 2009a), which is inevitably associated with any new technology that can be implemented as a tool or as a weapon.

Scientific and technological development allows applications that are becoming more powerful, in the sense that they are able to manipulate the constituent elements of nature at a decreasing level of size, while the effects of the manipulations can be realized in the macroscopic world in ever shorter time spans, and the extent of the impact of their consequences can also be global (see Roco and Bainbridge, 2003), especially in the case of interventions into the climate, which is by its nature globally present. Consequently, the intensity of any intentional or unintentional negative effects is also increased, along with the spatial scale of their consequences.

The problem of the production of global technological or civilization risks can also be viewed in the context of the theory of risk society (see Beck, 2009). Risks are systematically generated in the modernization process and increasingly threaten all life on Earth, are thus not only a result of human negligence or improperly executed safety and regulatory measures, but an inherent by-product of the production and social systems of the Modern Era, an inherent consequence of modern technical-economic development. The global risk of human-induced climate change and global warming thus has many features of modernization risks (Beck, 2009: 24-29) - it is generated by the release of carbon dioxide and other greenhouse gases, which have been discharged into the atmosphere in the last one hundred and fifty years in the



process of acquiring energy on which the modern industrialization is based, and its climate effects are long-term and global, do not stop at national borders and eventually affect both polluters and non-polluters alike. This threat is also outside of direct human perception and can therefore be constituted only through the tools of scientific study and public and political recognition of its importance (where the definition of “risk” is directly associated with specific value judgments and other interests), which means that it affects many aspects of society and causes a reorganization of power and authority.

While mitigation climate policy requires certain changes in the mechanisms and subsystems of society, that is, where the modernization risk of anthropogenic climate change was generated, the geoen지니어ing approach advocates a technocratic approach with technological fixes of hazards that have been produced by the technology itself, and therefore no changes in the modernization paradigm itself, and the human activity that is based on it, but instead a solution within the same paradigm.

Such action can also be compared to “upstream” and “downstream” interventions of addressing risks. The first approach is economically, socially and politically more difficult to implement, because it requires changes to existing practices, operations, structures, relationships and positions of power, meaning changes to the modernization paradigm, but it

could also mean the elimination of risks even before they appear. The other approach means addressing, resolving or channeling risks only when they have already manifested. With the emergence of new risks, however, it is often the case in the modern market society that new opportunities for the commercialization become evident, where the elimination or mitigation of risks represents a market opportunity, which is evident from the emergence of a number of mechanisms for greenhouse gas emissions trading. As already indicated by Beck (2009: 28), global risks can represent “big business” opportunities, and similarly individual geoen지니어ing techniques can open up many opportunities for commercialization as well as the emergence of new research disciplines and profitable industries.

The risk society therefore on the one hand produces civilizational risks, and on the other provides technological solutions to these risks, which in turn however generate their own, new risk. While new technologies often have a less polluting short-term impact on the environment, the level of the threat in cases when unforeseen side effects or accidents come about are proportionally higher, because they increasingly represent global catastrophic risks (see Bostrom and Ćirković, 2009). No matter if the source of civilizational risks is an inherent problem of modern society or an unaddressed systemic aspect that ignores the holistic assessment of technologies, products and

human activities in their diverse and interrelated effects on the biosphere of the Earth, to which the science of complexity and chaos theory have long drawn attention, it is possible that geoengineering interventions in the future will become an influential factor in the debates on climate policy. This could be further strengthened by previous failures of climate policy, the advancement of climate change, the difficulty of systemic changes and the attractiveness of commercial opportunities that are opened up by potential geoengineering approaches to tackling global warming.

Given the existence of articles that positively assess the theoretical efficiency of geoengineering measures and emphasize the likelihood of the inevitability of their use in the future, as well as articles that warn against the serious negative consequences of their use, the central research question deals with the analysis and the theoretical comparison of the efficiency of individual geoengineering interventions to offset the anticipated global warming and the examination of possible unintended consequences and potentials for dual-use, which could become manifest in the form of substantial technical and social risks.

## ANALYSIS

### Theoretical starting points and basic terms

Due to the rapid spread of beliefs about the reality and the seriousness of the consequences of human-induced climate change, both in the

broader scientific community, as well as among large segments of the public, and further due to the currently poor success of the measures to reduce anthropogenic emissions of carbon dioxide on a global scale, the past few years have seen a resurgence of interest in geoengineering and the proliferation of a number of proposals that have appeared in the scientific literature.

The examination of the possible environmental and social consequences of the use of geoengineering for now remains theoretical, but in line with the trend of anticipatory analyses of the potential future impact of advanced technologies on the biosphere, society and the individual in the context of ELSI (ethical, legal and social implications) can provide a richer and better informed holistic public discussion and may contribute to increasing the benefits and reducing the risks, respectively to abstain from excessively risky options in light of insufficient knowledge about the impacts on natural systems, which is also consistent with the use of the precautionary principle.

“Geoengineering” is generally defined as “the intentional modification of the Earth’s geophysical systems on a large scale for the purpose of changing the environment” (Cascio, 2008), and in connection with climate more specifically as the “engineering of the environment on a large scale in order to cope with or to counter the effects of changes in atmospheric chemistry, particularly to reduce the effects of increased greenhouse

gas concentrations, especially carbon dioxide “(Lenton and Vaughan, 2009: 2561). According to the definition, the geoengineering mechanism of action is related to the processes that have led to anthropogenic climate change, but differs from them in regard that this is not an unintentional, but attempt to exert effects on the climate.

“Albedo” means the ability of an object to reflect incoming electromagnetic radiation, and amounts to 0.9 for fresh snow, an extremely light material (high reflectivity, low absorption) and 0.04 for black, very dark matter (low reflectivity, high absorption). The average albedo of the Earth is 0.3.

“Expected global warming” in the context of the effectiveness of geoengineering techniques means an increase of global average temperature near the surface to a level assumed by the Intergovernmental Panel on Climate Change in the reports from 2001 and 2004, given the anticipated doubling of greenhouse gas concentrations in the atmosphere. The range of the effect of a specific technique is assumed from its implementation over the next decade to the year 2050.

“Dual-use technologies” are be defined as advanced technologies that can benefit society, when they are used for civilian purposes, but they can also be converted into offensive military applications. The classic example of dual-use technologies is nuclear technology, which can be implemented to serve a constructive societal

purpose in the form of nuclear power plants, or to serve destructive purpose in the form of nuclear weapons.

## **AN OVERVIEW OF GEOENGINEERING TECHNIQUES AND THE RISK OF UNINTENDED CONSEQUENCES**

The proposed geoengineering projects can be generally divided into two categories, namely into measures aimed at managing solar radiation respectively temperature management, and into measures aimed at the remediation of greenhouse gas concentrations.

### **Geoengineering techniques for the management of solar radiation**

The category of solar radiation management techniques comprises four groups, and the mechanisms that they use work through an increased reflection of incoming solar radiation (albedo) with the purpose of offsetting the overall energy balance of the Earth (the sum of the incoming solar radiation and the outgoing radiation, which is emitted from the Earth into space) and, consequently, of reducing global warming.

#### **Atmospheric projects**

The first group consists of atmospheric projects that exert their effects by changing atmospheric processes, by enhancing natural processes, such as the sulfur cycle, or by the use of artificial techniques, such as reflective balloons.

The use of “stratospheric sulfur aerosols” (Crutzen, 2006), that is, the injection of energy-reflecting particles into individual areas of the earth’s atmosphere with artillery, airplanes or balloons, in order to increase the Earth’s albedo, is supposed to be, given theoretical technical analyses (Lenton and Vaughan, 2009: 2576),<sup>1</sup> one of the most efficient geoengineering techniques, as it could, by reflecting one to two percent of the incoming sunlight, fully offset the expected global warming. For this purpose, an initial two to ten million tons of sulfur would need to be injected into the atmosphere annually, and then from two to ten megatons yearly for maintenance. The most suitable location for injection would be in tropical regions, and the quantity of the injected material would depend on the properties of the particles. On the other hand, the use of stratospheric sulfur aerosols would be accompanied by the decomposition of the atmospheric ozone, the increased occurrence of drought due to the impact of the water cycle,<sup>2</sup>

<sup>1</sup> The calculations of the capability of specific geoengineering techniques to offset projected global warming were carried out under certain assumptions about the ideal environmental conditions and responses or about available land and industrial facilities, and therefore do not necessarily represent actual values. Additional consideration is also required by the source and amount of energy that would be needed for the development and introduction of individual geoengineering techniques. If the required energy input were extremely high or if the energy needed would come mainly from fossil fuels, such “production costs” could significantly diminish the potential benefits of geoengineering. For details, see the mentioned article.

<sup>2</sup> The blocked or heavily filtered sunlight inhibits the surface evaporation of water due to which clouds are generated,

as was the case at the time of natural sulfur injections into the atmosphere due to eruptions of the volcanoes Agung, El Chicon and Pinatubo (Brahic, 2007), or the occurrence of acid rain and other adverse health effects of sulfur fallout, and increasing quantities of sulfur aerosols would also be progressively less efficient.

Other proposals for the introduction of reflective aerosols or dust into the lower stratosphere with the aim of changing climate include the addition of small metal flakes or silicone mixture in jet fuel, while reducing the efficiency of combustion in aircraft would enable the introduction of soot into the atmosphere, however, it is not yet clear which form of soot increases and which decreases warming, and their impact on the environment and health is also questionable. As an alternative to sulfur and other particles, the use of powder, which is derived from natural soil, was suggested and would probably not have unforeseen effects when it eventually settled back to the surface. Offsetting the projected global warming would require a kilogram of powder for every hundred tons of carbon dioxide emissions (Bala, 2009).

---

which also means less precipitation. There are also historical records of catastrophic droughts that followed larger eruptions. Finally, sulfur particles in the atmosphere could cause the sky to appear slightly hazy from the ground, making the sunsets a strong-red color.

“Enhancing the reflectivity of clouds” could be achieved by spraying water into the atmosphere (Salter et al., 2008). Fleets of automated rotor ships or Flettner vessels would roam the oceans and spray sea water as mist into the air, which would result in the thickening and increased whiteness of the existing clouds. Thus strengthened clouds would reflect more incoming sunlight and by increasing the low cloud cover by four percent, it would be possible to fully offset the expected global warming. The risks are mainly regarding the impact on rainfall and the possible formation of extreme weather events. By introducing substances for “cloud seeding” into the atmosphere with surface, aircraft or missiles, formation of new clouds and increased cloudiness could be further strengthened (Mitchell and Finnegan, 2009). Again, there is a risk regarding the impact of these materials on health and the environment.

“Strengthening the oceanic sulfur cycle” (Wingenter, 2007) by injecting iron into a smaller area of the Southern Ocean for one month every summer would increase the growth of phytoplankton and its production of sulfur compounds, which, released into the atmosphere, are transformed into aerosols for the condensation nuclei of newly forming clouds and increase the reflectivity of the existing clouds. This technique could offset up to 0.5% of projected global warming (Lenton and Vaughan, 2009: 2578). The negative aspects are described below.

Another suggestion was installing billions of “reflective balloons” filled with hydrogen and coated with aluminum to form a reflective barrier at a height where they would not to hinder air traffic (Teller et al., 1997). A sufficient number of balloons could offset expected global warming, while the negative aspects are mainly in up to twenty times higher costs as compared with the technique of injecting dust, in problems with movement control and with balloon waste.

Reducing the amount of sunlight that reaches the surface, could, with the implementation of the projects in this group, also reduce the effectiveness of a majority of technologies that collect solar energy, and it would very likely have an impact on flora and fauna, as well as many different environmental cycles.

### Projects for altering surface albedo

The second group consists of techniques for modifying the surface albedo, that is, technologies that enhance the thermal reflectivity of the land surfaces, thereby reducing the amount of absorbed energy from the sun in order to reduce the global average temperature. Bright surfaces such as freshly fallen snow and ice have a high albedo, and dark surfaces such as soil, oceans and asphalt have a low albedo. Using the technology of “cool roofs”, by covering the roofs of buildings as well as other paved surfaces with white, pale or reflective colors to increase their reflectivity, would, due to the limited surface area occupied



by cities and other settlements, not offset a significant proportion of global warming, but it represents an attractive choice due to relatively low cost of implementation and the fact that the higher reflectivity of buildings would also reduce the need to cool closed spaces and thus the emissions of carbon dioxide (Akbari et al., 2008). Increasing the albedo of the all the world settlements, which represent approximately 0.5% of the Earth's surface, would be able to offset up to 17% of the expected warming, and increasing the albedo of urban buildings, which represent 0.05% of the Earth's surface, would offset 0.3% (Lenton and Vaughan, 2009: 2580).

The use of “reflective tarpaulin” envisions covering vast areas of desert terrain with light plastic sheets, where covering approximately 110,000 km<sup>2</sup> of desert, or 2% of the desert areas of the Earth, would be sufficient to offset about half of the projected global warming (Lenton and Vaughan, 2009: 2578). The effects of such an approach would be largely regional, which means they would only cause regional cooling, and would not prevent the melting of Arctic ice (Gaskill, 2008). They could however greatly affect the functioning of local ecosystems. Additionally, the inevitable accumulation of various substances on the reflective layers of tarpaulin over time would greatly reduce its effectiveness.

An early geoengineering suggested the concentration of free-floating marine waste of pale colors in areas of circulating of ocean

currents, which would merged into large and stable patches that could increase the albedo of the ocean, but could also affect the life cycles of marine organisms in the areas of circulation, and would also further encourage the dumping of garbage into the sea.

### Projects for surface management

The third group contains land surface management techniques, which, like the previous group, would work by increasing the albedo. “Reforestation” in tropical areas would increase the albedo of the surface by covering dark soil and causing a cooling effect, which is effected by the evaporative transpiration of water by the trees, while “deforestation” in high latitudes and on high altitudes could also increase the albedo by uncovering light snowy surfaces. “Altering pasture, open shrub lands and savannas” into more reflective surfaces could offset 17% of the projected global warming, and “altering arable land” up to 12% (Lenton and Vaughan, 2009: 2579). Harvested crops and grazed surface would of course need to be regularly renewed. In the latter case, it would be possible to use “crops with high albedo”, that is, selecting commercial plants that have been selectively bred or genetically engineered in order to increase their surface reflectivity, which would represent geoengineering enabled by bioengineering - biogeoengineering (Brahic, 2009). The benefits are in the simple transition



from cultivation of the previous types of crops to crops with high albedo and the economic usefulness of the cultivated plants. The risks of using genetically engineered plants are the general risks of genetically modified plants, especially the transfer of genetic material to other plants and animals, displacement of other crops, unforeseen mutations and possible health impacts of the physiological effects of modified food crops in other organisms (see Horn, 2001).

### Space projects

The fourth group comprises space projects, that is, establishing artificial structures in the Earth's orbit or at a point of gravitational stability between the Earth and the Moon, which would reflect a certain proportion of sunlight back into space, thus decreasing the global temperature of the Earth. Using "space mirrors" or "space parasols", it would be possible to reflect a portion of incoming sunlight (Angel, 2006), with a cloud "moon dust" (Angel and Worden, 2006) or "dispersion media", for example with a diffraction lens of a few millimeters thickness and a thousand kilometer diameter, which could diffract the incoming sunlight and thus reduce global temperature (Teller et al., 1997). With a structure or set of smaller structures, which would cover an area of 4.1 million kilometers, it would be possible to reduce incoming sunlight by 1.5%, and thereby fully offset the expected warming, although the increase in

greenhouse gas concentrations over time would require a permanent increase of the structure (Lenton and Vaughan 2009: 2575). While space geoengineering projects promise a full offsetting of the warming, a high degree of control over the Sun's radiation, high efficiency, and a lower risk of possible unintended side effects, as they are located outside the Earth's atmosphere, such projects are probably quite distant from realization due to the poor development of the space industry and the extremely high price of transport of material from the surface of the Earth into orbit.

The main advantages of geoengineering techniques for the management of solar radiation are therefore the ability to offset or at least to reduce the proportion of the rise in expected global temperature and the speed with which they can be implemented, as well as the short time span in which they start to take effect, which in the case of projects such as the introduction of sulfur aerosols would be only a few weeks, and therefore they could be used primarily as emergency and temporary measures to slow the effects of climate change, in order to provide additional time for the reduction of greenhouse gas concentrations with reduction measures or geoengineering remediation techniques. Their disadvantage is that their effects do not reduce the concentration of greenhouse gases in the atmosphere and thus do not address the other problems caused by

increased amounts of carbon dioxide, such as ocean acidification.<sup>3</sup>

In addition to numerous risks of unintended consequences for the environment and health, these techniques also carry a societal risk, because a reduction in global warming could reinforce the general belief that reducing greenhouse gas emissions and the associated costs are no longer necessary. Emergency measures could gradually become a normal state, as it would be in this sense “easier” to maintain a long-term non-remediation geoengineering project rather than the complex issue of discontinuing carbon-based fuel usage. Of course, this does not take into account the negative effects on the carbon and hydrological cycle of the planet, such as ocean acidification (Science Daily, 2008), and it is also possible that the continuing unbridled increase in greenhouse gases would lead to currently still unknown disturbance or disruptions of processes that enable the existence of life as we know it. A large risk is also represented by the abrupt termination of atmospheric geoengineering techniques, as it would be followed by a sudden and rapid increase in global temperatures to levels that would normally exist if geoengineering had not

---

<sup>3</sup> Increased acidity of the oceans due to excess carbon dioxide content in the water would cause disturbances in the formation and the melting of existing shells, and problems with the metabolic processes of other marine organisms, which could in extreme cases also lead to a condition where the oceans would become inhospitable for a large portion of existing marine life, and such a situation could persist for many thousands of years.

been implemented. This could lead to much more serious consequences than a long-term gradual increase to the same temperature levels (Ross and Matthews, 2009).

## Geoengineering techniques for the remediation of greenhouse gas concentrations

The second category, which includes techniques for the remediation of greenhouse gas concentrations, is aimed at removing excessive amounts of greenhouse gases from the atmosphere, through direct removal or by affecting natural processes with the aim of indirect removal. Sequestration techniques are aimed at the long-term storage of carbon dioxide or other forms of carbon to mitigate global warming.

“Ocean fertilization” is the deliberate introduction of nutrients into the upper layers of the ocean in order to promote the growth of phytoplankton (algae), which would then bind the carbon dioxide from the atmosphere, first in living organisms, then by the deposition of dead organisms on the seabed. The growth of phytoplankton could be enhanced with the introduction of phosphorus and iron into the oceans in the polar longitudes and of nitrogen in the median latitudes (Traufetter, 2009). The “fertilization” of oceans with phosphorus due to excessive use of agricultural fertilizers that are washed through rivers into the oceans has been ongoing for decades, and thus this form

of geoengineering is already being carried out completely unplanned. The risks are located in the difficulty of foreseeing the actual effects on the marine ecosystem or in deviations from expected effectiveness (Fogarty, 2008), and especially in the danger that large patches of algae would deplete the oxygen in large areas of the ocean and thus kill much of the other marine life. Already conducted experiments by individual private institutions, which would be followed with a commercialization of ocean fertilization in the context of carbon trading could lead to greater international acceptance of this technique. Criticisms here relate mainly to the unforeseen effects of promoting the growth and use of the remote Southern Ocean by Western countries for the implementation of such “experiments” (Paull, 2009). Ocean fertilization could offset 2% of the warming through the addition of phosphorus, 1.5% through the addition of nitrogen, and 3% through the addition of iron (Lenton and Vaughan, 2009: 2583-2585).

“Enhancing the flow of sea water to the surface” with the installation of 4 million pumps and large vertical pipes that would pump the nutrient-rich, particularly nitrogen and phosphorus-rich, water from the seabed, would also promote algal blooms (Lovelock and Rapley, 2007: 403). Again, this could upset the existing life cycles of marine organisms. It could offset up to 0.03% of warming (Lenton and Vaughan, 2009: 2586).

Reforestation and afforestation of available areas could, with new forests that would form an additional carbon sink, offset 13% of the heating (Lenton and Vaughan, 2009: 2581).

The pyrolysis of biomass makes it possible to create a “biochar” (anaerobic charcoal), and by burying it underground, its potential for oxidation into carbon dioxide would also be removed, although it is eventually recycled in the millennia-lasting natural carbon cycle. As a bonus, it produces a form of very fertile soil, terra preta (Lehmann et al., 2006). Using biochar, especially if it is produced using renewable energy sources, and if the spent biomass is replaced with new plants, it could be possible to offset 3% of the estimated warming, while the process is not limited to existing surfaces and does not rapidly reach a saturation point (Lenton and Vaughan, 2009: 2581).

The use of “bio-energy” with carbon capture and storage means acquiring energy from the combustion of biomass and the capture and storage of the carbon dioxide that is released in the process, which would result in zero net balance emissions (Azar et al., 2006). Similar forms of sequestration further include storing dead biomass inspired by the natural process through which fossil fuels are created by being buried on land (Lovett, 2008) or by immersion and storage on the seabed (Strand and Benford, 2009). The latter however represents a violation on the ban of dumping waste into the sea, and

the risk that a reduction in restrictions would increase this form of disposing of all kinds of waste materials.

“Capturing carbon dioxide from ambient air” includes geoengineering techniques to remove or “clean” carbon dioxide from the atmosphere, which is then stored in geological reservoirs. The advantages of this technique are its ability to capture from diffuse sources, geographic flexibility, which allows the implementation near the most suitable geological storage sites, and the use of renewable energy to power the plant. The use of “artificial trees” envisions the implementation of a large number of devices that would filter the ambient air, and thereby bind carbon dioxide. They are supposed to be thousands of times more powerful than the biological trees. Initially they would serve as compensation for emissions, later to reduce atmospheric concentrations and, finally, the captured carbon dioxide could be combined with hydrogen to produce liquid non-fossil fuels (Adam, 2008). A biological alternative to artificial trees would be genetically engineered biological trees, which could absorb atmospheric carbon dioxide, convert it to a chemically stable form and store in the ground, or they might be able to convert it into a liquid fuel and other useful chemical substances (Dyson, 2008). The advantages are mainly in self-maintenance, and potentially in self-reproduction, while the risks are the same as in the case of bioengineered

plants with increased albedo. “Cleaning towers” with fans that pump ambient air through the structure in the form of a tower, and bind carbon dioxide through a chemical process (Keith, 2009). The average person in the US annually emits 20 tons of carbon dioxide, which is also the annual sequestration capacity of each tower. “Sun troughs” could use solar cells to warm the air mixed with steam and bind the carbon dioxide it contains into lime (Kunzig and Broecker, 2009).

The carbon dioxide, captured with these “cleaning” techniques could be stored for the long-term by injecting it into depleted underground reservoirs of oil or gas, by a chemical transformation into carbonate minerals along the lines of natural geological processes (Herzog, 2002), and by injecting it into oceanic basalt, where risk of carbon dioxide leakage is lower than with other techniques (Kalaugher, 2008). While traditional forms of cement production emit large amounts of carbon dioxide, new types of concrete bind carbon dioxide from the ambient air while hardening (Jha, 2008). Various forms of capture and storage of carbon dioxide from the air could be offset up to 19% of warming (Lenton and Vaughan, 2009: 2582), and the techniques are limited only by the availability of reservoirs for the storage of carbon dioxide.

“Enhancing the flow of sea water to the bottom” would, in order to enhance the passage of carbon dioxide from the atmosphere into the

ocean, require the operation of a large number of floating pumps, through which it could compensate for 0.03% of the warming (Lenton and Vaughan, 2009: 2587).

“Adding carbonates”, that is, the spreading of crushed limestone, volcanic rock, or other base materials into the ocean with a smaller fleet could increase the alkalinity of the oceans and strengthen the “solubility pump”, which removes excessive concentration of carbon dioxide from the atmosphere through the oceans (House et al., 2007). Simultaneously, it could address the risk of ocean acidification for marine life. Such a technique could reduce the expected warming by 0.1% (Lenton and Vaughan, 2009: 2587), but it is again possible that changes in the existing system of the carbon cycle could have serious unintended consequences.

Another suggestion was the “photochemical decomposition of CFC” a powerful greenhouse gas, by using lasers (Stix, 1993). There are as yet no viable geoengineering solutions for the “removal of methane,” a greenhouse gas that is twenty times more potent than carbon dioxide. It would be however possible to strengthen the existing processes of methane degradation, for example through combustion, or chemical or biological degradation, which soil bacteria carry out in natural systems.

The geoengineering techniques for the remediation of greenhouse gases would act slower in comparison with the first category,

requiring several decades to centuries for implementation and coming into full effect. They would however provide remediation of the main causes of global warming, and thus they would also address the other side effects of the increased concentrations, such as chemical modification of the ocean. As a number of projects in this category overlap with projects for carbon capture, storage and sequestration, according to some definitions they do not fall within the geoengineering category, but into the category of mitigation measures within climate policy. The greater risks of unintended consequences are mainly linked to a radical strengthening of the individual components of natural processes, such as the growth of phytoplankton, or to attempts to mitigate the acidity of the oceans by adding new substances, or through the introduction of new genetically engineered plants, which could have negative effects on the existing flora and fauna.

### Arctic geoengineering

An additional, third category is represented by Arctic geoengineering, that is, the techniques for preventing the further melting of the Arctic ice, which plays an important role in regulating the global climate with its albedo, and also by containing enormous quantities of methane, a potent greenhouse gas, in the form of methane ice, trapped under the permafrost. It was suggested that spraying or pumping fresh water to the upper



part of the ice cap would lead to the formation of thicker ice, which is more resistant to melting (Watts, 1994: 419). The preservation of Arctic ice might also be influenced by geoengineering techniques for managing solar radiation, that is, indirectly through the reduction of global warming and directly through the injection of stratospheric sulfur aerosols over the Arctic or by covering the Arctic ice with reflective sheeting, which could again have unforeseen impacts on local processes and ecosystems. In the extreme cases catastrophic climate change, certain geoengineering measures could be used on a limited, regional scale specifically in the Arctic area.

### **THE POTENTIAL OF GEOENGINEERING TECHNIQUES FOR DUAL USE**

The dangers of geoengineering for humans and the rest of the biosphere emerge primarily from the unforeseen and unintended consequences of insufficient knowledge about the functioning of complex systems, which generate the climate and about other related geophysical cycles. However certain techniques carry an additional risk of intentional hostile use.

The estimated cost of some geoengineering projects, particularly the use of stratospheric sulfur aerosols, which would amount to several billion dollars, enhancing the reflectivity of clouds and ocean fertilization with iron, which would amount to several million dollars, are within reach of individual countries and even

some wealthy individuals and organizations. With the increasing complexity of dynamic climate models, which are coming closer to reality, it is possible that individual actors, who possess adequate resources, could exploit the unintended negative effects of the three previously mentioned techniques in order to worsen the weather conditions in the target regions or countries (Cascio, 2008). Individual countries are differently vulnerable to adverse climate impacts, which, in addition to geographical conditions, also depend on national economic strength and technologically sophisticated infrastructure. In this respect, poorer countries, and developing countries are certainly more vulnerable.

Regarding the deliberate manipulation of the climate for military purposes, there are already earlier studies, such as the studies on the use of weather as tactical weapon by the US military (Stehr and von Storch, 2010: 79-82). The Convention on the modification of the environment (ENMOD), specifically the Convention on the prohibition of military or any hostile use of techniques for the modification of the environment, explicitly prohibits the use of geoengineering techniques for altering weather or the climate for the purposes of warfare (UN, 2010), but due to the complexity of the climate processes it would be difficult to draw a clear connection between causes and the consequences, just as has happened in the case



of the emissions of waste gases from factory plants in one part of the world, which led to acid precipitation in another part of the world. Climate warfare would therefore be subtle, long-term and strategic.

The involvement of large military research and development agencies in geoengineering research, such as DARPA, on the one hand raises concerns about the potential use of such projects for hostile purposes. On the other hand, the military has at its disposal the necessary infrastructure, financial resources and experience in developing projects on a large scale, and it is politically and societally less restricted. With “realpolitik” arguments that it is necessary to be prepared in case “rouge” countries develop hostile geoengineering capabilities, this could lead to a new “climate” arms race (Caldeira, 2009).

In addition, the “geostrategic” deterioration of the climate in other areas, connected with the improvement of regional climate in countries that carry out geoengineering, the distinction between deliberate hostile use and side effects become even more blurred. The geographical distribution of countries ensures that there will be conflicting objectives with regard to the desired temperature and environmental conditions. Further, there are no conventions and institutions that would regulate who decides about the implementation or termination of possible projects, and about the optimum temperature and state of the global climate (Cascio, 2009a). The implementation

of several national geoengineering projects that would counter each other in their effects, could lead to a further deterioration in the already unstable climate.

Given the risks stemming from the rapid discontinuation of the use of atmospheric geoengineering techniques for the management of solar radiation, the intentional hostile use in terms of a terrorist attack in order to destroy a geoengineering project is also possible, and could have serious regional or even global consequences.

As can be seen, the potential for dual use is inherent mainly in atmospheric and space projects in the category of solar radiation management, which are both centralized and large-scale. There are several factors that could contribute to a lower risk of dual-use. These include especially transparency in conducting the studies and research on the implementation of geoengineering projects, a widening of the environmental and climate observation networks of sensors and satellites, and the strengthening of international supervisory and decision-making structures (Cascio, 2008).

## CONCLUSION

From the above, it is evident that individual geoengineering techniques vary considerably, since they do not all carry the same level of (known) risks of unintended consequences and all also carry the potential for dual use. They

also differ in terms of their theoretical efficiency to reduce the projected global warming, which varies depending on the assumed time span. The comparison is further made difficult by the fact that assessments of their effectiveness to offset global warming are not available for all proposed techniques, thus these techniques have not been included in the conclusion.

All technologies covered under the framework of geoengineering are far from identical in relation to their effects and risks. As usual, the greater efficiency of the intended use and speed of taking effect are associated with significantly higher risks of unintended consequences and greater opportunities for deliberate hostile use, but there is no direct connection between greater or lesser unintended consequences, and the division into the first or the second category of geoengineering techniques.

The group of atmospheric geoengineering projects, such as the injection of stratospheric sulfur aerosols or other engineered particles comprises the technically most powerful techniques that can take effect in a very short time span with a relatively low cost of development and deployment, but they do carry significant risks of unintended consequences and the potential for dual use. The same applies to the group of space projects, which are conversely hampered by the high cost of development and implementation.

The most acceptable of the techniques in the first category, according to the benefits

and risks of offsetting the Earth's albedo using pale or refractive colors for roofing buildings and paved areas, and by planting trees<sup>4</sup> v in an urban environment (Romm, 2009),<sup>5</sup> reforestation and increased use of economic plants with high albedo. Such an approach could be characterized as "soft" geoengineering, or remediation, as it corrects the imbalance arising from the reduction in albedo, caused by roofing and covering surfaces with dark, highly energy-absorbent materials, and revealing the dark areas through deforestation and other removal of other vegetation.

As they are only able to offset a small percentage of the expected warming in a shorter timeframe, they can represent only a supporting, additional measure for slowing climate change, one which could secure more time for the mitigation climate change policy or remediation measures to take effect, while their effectiveness is significantly increased in the long term. Projects in the group of

---

4 Trees can, through evaporative transpiration - the absorption of water from the ground, which evaporates from the tree into the environment - particularly in urban areas significantly reduce the temperature in their surroundings, and at the same time bind carbon dioxide and provide shade.

5 If the proposed measures for the "mitigation of urban heat islands" were used in all major cities of the world where there is a significant heat island effect, a lower contribution to global temperature and a reduction in the production of carbon dioxide from air-conditioning would have a similar effect as if we stopped using the approximately 600 million cars in the world for 18 years. A lower temperature in urban areas would substantially reduce the formation of smog, especially ozone, which is mostly formed at higher temperatures.

techniques for the modification of the surface albedo and the management of land surface thus have a lower theoretical efficiency to reduce the projected global warming mostly do not have known unintended consequences and no potential for dual use. The use of reflective tarpaulin has a greater risk of unintended regional consequences for local ecosystems, while the use of genetically engineered plants with high albedo brings risks that are identical to the introduction of genetically modified organisms into the open environment.

The second of the less risky categories consist of geoengineering approaches that are aimed at reducing the increased concentrations of greenhouse gases, in particular the group of sequestration measures. Their advantage is that they directly remove the substances that accelerate global warming, while their efficiency is lower, and the time span within which they begin to exert effects is significantly longer than for the projects in the first category.

The risks of unintended negative consequences are, given the current state of knowledge, lower, except in the case of riskier actions aimed at promoting the growth of oceanic phytoplankton and algae and the introduction of genetically engineered “trees” for the sequestration of carbon dioxide, which conversely again represent technically more efficient approaches. As has already been mentioned, increased growth of phytoplankton due to the

excessive use of agricultural fertilizers is already taking place. This category does not have a significant potential for dual use.

The use of biochar and other techniques for the storage of biomass given the benefits and risks represent the most acceptable techniques in the second category. The acceptability of the use of artificial trees, cleaning towers and solar troughs is also connected with the storage of captured carbon dioxide. a lower risk is carried by projects that capture carbon dioxide and return it into the millennia-lasting natural processes of circulation and transformation in the carbon cycle of the planet. A greater risk is presented by techniques which store carbon dioxide in isolated geological or human-built landfills, where there is also a risk of long-term gradual leakage or even a sudden release into the atmosphere, which would be followed by a substantial increase in warming. Moreover, there seems that the less risky techniques, which as far as possible include the regular, natural geophysical processes and do not introduce additional substances into existing systems, which is for example intended in measures that would “rebalance” the pH value of the oceans, or those that do not try to accelerate or slow down existing systems to an excessive degree.

The examined geoengineering techniques were analyzed individually and with an assessment of their effectiveness up to the year 2050. Table 1 ranks the techniques from the most effective (left) to the least efficient (right).

Space parasols	Capture and storage of carbon dioxide from air	Albedo of pastures	Ocean fertilization	Addition of carbonates	Enhancing flow to the bottom
Stratospheric aerosols	Desert albedo	Albedo of cultivated surfaces	Settlement albedo	Cloud seeding with phytoplankton	Enhancing flow to the surface
Enhancing cloud reflectivity		Biochar		Albedo of urban objects	
		Afforestation			

TABLE1: A comparison of the effectiveness of geoengineering techniques. Source: Lenton and Vaughan 2009: 2589.

The assessment of the effectiveness of geoengineering techniques on longer time scales and/or in different combinations differs from the present analysis (see Lenton and Vaughan, 2009: 2591).

The individual risk assessments of the techniques are also mostly theoretical and still largely unexplored. Table 2 shows a qualitative ranking of the risks (both unintended consequences and the risks of dual use) of individual techniques, ranked from the presumably most risky (left) to the least risky (right), although it should be noted that the techniques that are ranked as less risky, can nevertheless carry some as yet unknown risks, a fact, which could completely change the ranking.

The geoengineering projects for the management of solar radiation as well as remediation projects also include a political and moral hazard, since greater public acceptance of their use could stop or at least slow down the development and deployment of technologies for energy production that are based on cleaner, renewable sources. If they were implemented on a sufficiently large scale, they could significantly reduce the negative consequences of the use of carbon-based energy technologies. Thus the risk of dependence on dwindling fossil fuel reserves would persist, which would in the long term lead to social turmoil when the remaining reserves became exhausted, especially if the development of renewable sources would be temporarily halted, while the “secondary”

Stratospheric aerosols	Desert albedo	Addition of carbonates	Capture and storage of carbon dioxide from air	Albedo ispašnih površina	Albedo urbanih objekta
Enhancing cloud reflectivity	Ocean fertilization	Enhancing flow to the bottom		Albedo of cultivated surfaces	Albedo naselja
Space parasols	Cloud seeding with phytoplankton	Enhancing flow to the surface			Biochar
					Afforestation

TABLE 2: Qualitative assessment of the risks of geoengineering techniques.

pollution from various substances harmful to health and environment that are emitted when burning fossil fuels would continue.

Thus, if the geoengineering techniques that are ranked as less controversial and less risky were implemented, it is clear, given their anticipated effectiveness, that they by themselves would not be able to offset the atmospheric concentrations if the same or even increased amounts of greenhouse gases continued to be emitted. Their role is thus primarily within the MAG approach, where it can represent only a third, additional measure next to mitigation and adaptation.

The use of “radical” geoengineering technologies, especially atmospheric techniques such as the introduction of sulfur aerosols into the atmosphere, would be at a time when there is as yet no clear evidence of extreme weather events that would indicate a catastrophic course of climate change or signs hinting at a transition point from one stable climate state to another, as stated by Joe Romm (2007), similar as if your doctor told you that you have a serious disease that can be cured by a strict diet and physical exercise (mitigation climate policy and the remediation of greenhouse gases), but instead you rather opt for an experimental therapy (radical geoengineering), where you do not need to alter any lifestyle habits, but the success of recuperation is uncertain, even though severe side effects are fairly certain. Unfortunately, in reality the decision of many patients in such

circumstances is the same as in Romm’s parable, which means that the conduct and decisions of many citizens and countries in tackling the problem of climate change is also questionable.

Although the studies exploring the technical effectiveness and risks, as well as the ethical, legal and societal impacts of the potential use of geoengineering repeatedly stress that such work consists of theoretical research, which only examines the future possibilities of tackling the climate issue and not to advocate, support or promote the use of geoengineering, we can in the case of certain techniques already observe the formation of the first networks of stakeholders and actors, who are striving for commercial development. Such activity is particularly noticeable in relation to the technique of ocean fertilization,<sup>6</sup> which would stimulate the growth of plankton and commercialize its ability to bind excess carbon dioxide from the atmosphere into the ocean biomass.

---

<sup>6</sup> Some attention was also attracted by a patent application made by Bill Gates and co-investors, including the climatologist and geoengineering expert Ken Caldeira, for a technique that would use boats equipped with pumps for cooling the water on the surface of the ocean along the paths of hurricanes movements, and would thus reduce the destructive power of these storms. The application also mentions the company Atmocean, which deals with the pumping of ocean water (see Vergano, 2009). Although this technique could be used to mitigate extreme weather events that might eventually occur as a result of climate change, this technique, given its mode of function falls into the category weather manipulation (in the sense of climate phenomena with local influences and effects) and was therefore not included in the context of geoengineering techniques (which relate to the manipulation of global weather conditions).



According to some studies the amount of plankton in the world's oceans has declined over the last three decades (Greg et al., 2002) and an ambitious reconstruction program could presumably open up a potential sink for approximately 3-5 billion tons of carbon dioxide, with a market value of 75 billion Euros. The technique of fertilizing the oceans with iron is relatively cheap compared to other geoengineering techniques, and even in the case of minimum efficiency the costs of fertilization would not exceed 20 billion Euros. Numerous experiments were already conducted, particularly in the Southern Ocean, which have demonstrated the technique's feasibility. Although the tests were conducted as scientific research, companies have already been established, such as Planktos and Climos (Ritchel, 2007), which seek to develop the emerging market opportunity. In today's post-academic scientific system that requires the rapid transfer of research findings from academia into practical market implementation, and the largest and most rapid possible profit return on the initial investment, such experiments are directly connected to practical implementation and the creation of new commercial ventures, which is also shown by the initial trials and subsequent marketing efforts of the research institute Alfred Wegener (Paull, 2009).

Such development continues despite the criticism that fertilization also promotes the growth of toxic plankton, which disrupts the

living conditions of many other organisms in nearby waters ("red tide"), that upon the die off bacteria begin to multiply and consume most of the oxygen in the water, creating an anoxic environment, that promoting the proliferation of various marine organisms can result in instabilities across the entire food network, that it may cause changes in ecosystems where the amount of iron is already naturally low, into completely different ecosystems, and finally, that the amount of plankton in the oceans has actually increased rather than decreased over the last three decades (Antoine et al., 2005). Proponents, on the other hand, argue that historically, numerous and naturally stimulated even larger algal blooms have already occurred, which were not accompanied by any of the risks mentioned. Critics further point out that the application of the precautionary principle advises against ocean fertilization, as interventions into the oceanic ecosystems carry substantial, unknown and potentially irreversible risk. Also, the oceans are a system that is complex, essential for life and insufficiently studied that it would be possible to predict all interconnected effects and impacts of such interventions. The proponents, making use of the same principle, argue that the risks of the (un)known consequences of ocean fertilization are lower than the known consequences of climate change, which will surely become manifest in case of inaction.



According to the theory of the risk society, the technological modernization process, in its striving to control nature and natural hazard risk inherently produces risks of an increasing extent, power and influence, which it tackles with new technological interventions within the spirit of the same paradigm, which in turn produce their own, new risk. The question therefore arises if it is actually possible to reduce the initial risk with a technocratic solution, which contains new and perhaps even greater risks. The reflexivity of modernity, at least to some extent, makes possible “conscious” decision about the acceptance of risky solutions to address threats that are generally recognized as socially unacceptable. Thus, society should no longer address threats merely through a classic bureaucratic-rational approach in the context of risk management, especially when the acceptability of the risk is decided by a narrow group of experts, but instead in a public debate, rich with professional and anti-expert knowledge, and with the involvement of the widest possible scope of stakeholders, especially those groups that will be most vulnerable to the potential side effects, although precisely those groups are generally most marginalized regarding access to communication and decision-making channels.

Within the debate on geoengineering, both supporters and opponents agree that there is a need for further and more thorough studies that would shed light on the broader mechanisms of

action, possible unintended consequences and the ethical, legal and societal impacts. The biggest contribution to a more relevant and balanced public debate would be the transparency of research and public access to research results. In addition to the risk of unilateral development and implementation of the techniques due to commercialization, as is evident in the case of ocean fertilization, there is also the risk of increasing the acceptability of geoengineering measures among the general public, since, as shown by a US survey (Anissimov, 2010) on public attitudes toward medical applications and physical enhancement that are based on nanotechnology, it is precisely the knowledge of both the risks and the benefits that increases the public support for new technologies. The coupling of research to subsequent commercialization might possibly be circumvented by transparent and non-repayable public funding of research, although in the modern post-academic system even public funding is increasingly awarded on the basis of the estimation of future market potentials. It is no less difficult to find a balance between secrecy and the publication of new knowledge, as, on the one hand, the sense of being aware of risky interventions can lead to greater acceptability of measures with “known” risks, while on the other, the confidentiality of research could lead to a loss of public trust and to development and implementation in the context of non-transparent military programs.

Despite the fact that the development of technology and modernization processes produce heterogeneous “civilizational” risks, it should be remembered that benefits are also generated together with the risks (although they are often limited to developed countries), and they range from greater food security through access to health services to new and once unimaginable information and communications capabilities as well as the possibility of manipulating the world and, not least, according to some experts, to the persistent absence of a conventional war on a global scale because of the existence of nuclear weapons, which ensure mutual destruction (Dworsky, 2009).

Finally, the complex system of natural physical processes also inherently produces risks by itself, which in comparison to human-generated global catastrophic risks appear on the (long-term) geological time scale, but are still global in nature, extremely destructive, and in the absence of technological interventions by humanity, inevitable. The evidence of numerous mass extinctions, which were cause throughout the 3.5 billion year long history of life on Earth without human presence by natural processes, among which are also directly or indirectly caused natural changes in climate (see Bostrom and Ćirković, 2009), suggest that mankind will need to, if it wants to ensure the continued existence of their own and other species of life and the present state of the global environment,

at some point in the future, start implementing an active management of the global climate.

While some of the mentioned geoengineering techniques represent the first beginnings of mechanisms for the long-term management of climate change, their primary purpose is still to mitigate the risk of a global catastrophe resulting from the unintended consequences of human activity, that is, from anthropogenic climate change. By taking into account the findings of the science of complexity and chaos theory, it is clear that all our models are far from being able to encompass all the dimensions of the functioning, mutual interaction and responses of natural systems, therefore the first potential attempts to deliberately alter the climate in order to mitigate climate change will necessarily be made under the risk of great uncertainty of its effects and unforeseen consequences. Another alternative is represented by the adaptation of humans and human societies to changing circumstances, although it is questionable to how extensive changes in how short a time span modern technological societies can still adjust before we would be faced with a modern collapse of civilizations.

If, due to convictions about sudden and catastrophic nonlinear climate change, resulting from global warming, the use of “radical” geoengineering techniques became publicly and politically acceptable, it is possible that their implementation would be

decided by intergovernmental or global forums, in multistakeholder discussions, underpinned by extensive scientific studies and limited experiments. However, due to the comparably low cost of the implementation of some measures it is also possible that sufficiently wealthy individuals or organizations, convinced of the inevitability of abrupt and catastrophic climate change, or perhaps out of commercial interests, might themselves launch geoengineering projects. Such a course could also be triggered by desperate countries affected by extreme weather events, or by countries wishing to improve their own climate and environmental conditions, or perhaps even by some of the developed countries in order to improve their regional climate or ensure their own geostrategic position through the capabilities for the dual use of geoengineering. And precisely in an overhasty, unilateral and nationally or commercially driven development, without taking into account the limitations of our knowledge and the possibilities of serious unintended consequences, is where the greatest risks lie.

## LITERATURE

- ADAM, D. (2008): *Could US scientist's 'CO2 catcher' help to slow warming?* The Guardian. <http://www.guardian.co.uk/environment/2008/may/31/carbonemissions.climatechange> (16. november 2010).
- AKBARI, H., S. MENON IN A. ROSENFELD (2008): *Global cooling: increasing world-wide urban albedos to offset CO<sub>2</sub>*. Climatic Change 94(3): 275-286.
- ANGEL, R. (2006): *Feasibility of cooling the Earth with a cloud of small spacecraft near the inner Lagrange point (L1)*. PNAS 103 (4), 17184–17189.
- ANGEL, R. IN S. P. WORDEN (2006): *Making Sun-Shades from Moon Dust*. National Space Society, Ad Astra 18(1): 34-36.
- ANISSIMOV, M. (2010): *Survey: Hiding Risks Can Hurt Public Support for Nanotechnology*. Accelerating Future blog. <http://www.acceleratingfuture.com/michael/blog/2010/05/survey-hiding-risks-can-hurt-public-support-for-nanotechnology/> (15. Nov 2010).
- ANTOINE, D., A. MOREL, H. R. GORDON, V. F. BANZON IN R. H. EVANS (2005): *Bridging ocean color observations of the 1980's and 2000's in search of long-term trends*. J. Geophys. Res. [http://www.obs-vlfr.fr/LOV/OMT/fichiers\\_PDF/Antoine\\_et\\_al\\_JGR\\_05.pdf](http://www.obs-vlfr.fr/LOV/OMT/fichiers_PDF/Antoine_et_al_JGR_05.pdf) (16. november 2010).
- AZAR, C., K. LINDGREN, E. LARSON IN K. MOELLERSTEN (2006): *Carbon Capture and Storage From Fossil Fuels and Biomass – Costs and Potential Role in Stabilizing the Atmosphere*. Climatic Change 74(1-3): 47-79.
- BALA, G. (2009): *Problems with geoengineering schemes to combat climate change*. Current Science 96(1): 41-48.
- BECK, U. (2009): *Družba tveganja. Na poti v neko drugo moderno*. Ljubljana: Založba Krtina.
- BOSTROM, N. IN M. M. ČIRKOVIĆ (ur.) (2009): *Global Catastrophic Risks*. Oxford: Oxford University Press.
- BUDYKO, M. I. (1977): *Climate Changes*. Washington DC: American Geophysical Union.
- BRAHIC, C. (2007): *»Sunshade« for global warming could cause drought*. New Scientist. <http://www.newscientist.com/article/dn12397> (15. november 2010).
- BRAHIC, C. (2009): *A high albedo diet will chill the planet*. New Scientist. <http://www.newscientist.com/article/dn16428-a-highalbedo-diet-will-chill-the-planet.html> (16. november 2010).
- CALDEIRA, K. (2009): *DARPA and Geoengineering*. Geoengineering group. [http://groups.google.com/group/climateintervention/browse\\_thread/thread/60f448608e209134?pli=1](http://groups.google.com/group/climateintervention/browse_thread/thread/60f448608e209134?pli=1) (16. november 2010).
- CASCIO, J. (2008): *Battlefield Earth*. Foreign Policy. [http://www.foreignpolicy.com/articles/2008/01/27/battlefield\\_earth](http://www.foreignpolicy.com/articles/2008/01/27/battlefield_earth) (15. november 2010).

- CASCIO, J. (2009a): *It's Time to Cool the Planet*. The Wall Street Journal. Dostopno na <http://online.wsj.com/article/SB10001424052970204771304574181522575503150.html> (16. november 2010).
- CASCIO, J. (2009b): *Hacking the Earth: Understanding the Consequences of Geoengineering*. Lulu Press.
- CRUTZEN, P. J. IN E. F. STOERMER (2000): *The »Anthropocene«*. Global Change Newsletter 41: 17-18.
- CRUTZEN, P. J. (2006): *Albedo Enhancement by Stratospheric Sulfur Injections: A Contribution to Resolve a Policy Dilemma?* Climatic Change 77: 211–220.
- DYSON, F. (2008): *The Question of Global Warming*. The New York Review of Books. <http://www.nybooks.com/articles/archives/2008/jun/12/the-question-of-global-warming/> (15. november 2010).
- DWORSKY, G. (2010): *The perils of nuclear disarmament: How relinquishment could result in disaster*. Sentient Developments blog. <http://www.sentientdevelopments.com/2009/03/perils-of-nuclear-disarmament-how.html> (16. november 2010).
- GREG, W. W., M. E. CONKRIGHT, J. E. O'REILLY, F. S. PATT, M. H. WANG, J. A. YODER IN N. W. CASEY (2002): *NOAA-NASA Coastal Zone Color Scanner Reanalysis Effort*. Appl. Opt. 41: 1615-1628.
- KALAUGHER, L. (2008): *Carbon storage in undersea basalt offers extra security*. Environmental Research Letters. <http://environmentalresearchweb.org/cws/article/news/35017> (16. november 2010).
- FOGARTY, D. (2008): *RPT-FEATURE-Scientists urge caution in ocean-CO2 capture schemes*. Thomson Reuters Foundation. <http://www.alertnet.org/thenews/newsdesk/SP39844.htm> (16. november 2010).
- FRAME, D. IN M. R. ALLEN (2009): *Climate change and global risk*. V: Bostrom, Nick in Milan M. Ćirković (ur), *Global Catastrophic Risks* (str. 265-286). Oxford: Oxford University Press.
- GASKILL, A. (2008): *Global Albedo Enhancement Project*. <http://www.global-warming-geo-engineering.org/Albedo-Enhancement/Surface-Albedo-Enhancement/Calculation-of-Coverage-Areas-to-Achieve-Desired-Level-of-ForcingOffsets/Desert-Area-Coverage/ag28.html> (15. november 2010).
- HERZOG, H. (2002): *Carbon Sequestration via Mineral Carbonation: Overview and Assessment*. Massachusetts Institute of Technology. <http://sequestration.mit.edu/pdf/carbonates.pdf> (16. november 2010).
- HORN, R. (2001): *What we know – and what we don't know – about ecological risks of genetically engineered plants*. <http://www.macrovc.com/image/GMimg/infoMrlUnknwnslnGMv7.pdf> (16. nov 2010).
- HOUSE, K. Z., C. H. HOUSE, D. P. SCHRAG IN M. J. AZIZ (2007): *Electrochemical Acceleration of Chemical Weathering as an Energetically Feasible Approach to Mitigating Anthropogenic Climate Change*. Environmental Science & Technology 41(24): 8464-8470.
- INSTITUTION OF MECHANICAL ENGINEERS (2009): *Mitigation, Adaptation and Geoengineering*. [http://www.imeche.org/Libraries/Key\\_Themes/IMechE\\_MAG\\_Report.sflb.ashx](http://www.imeche.org/Libraries/Key_Themes/IMechE_MAG_Report.sflb.ashx) (15. november 2010):
- JHA, A. (2008): *Revealed: The cement that eats carbon dioxide*. The Guardian. <http://www.guardian.co.uk/environment/2008/dec/31/cement-carbon-emissions> (16. november 2010).
- KEITH, D. (2009): *Why Capture CO2 From The Atmosphere*. Science 325: 1654-1655.
- KUNZIG, R. IN W. BROECKER (2009): *Can technology clear the air?* New Scientist 2690: 34-37.
- LEHMANN, J., J. GAUNT IN M. RONDON (2006): *Bio-char sequestration in terrestrial ecosystems – a review*. Mitigation and Adaptation Strategies for Global Change 11: 403-427.
- LENTON, T. M. IN N. E. VAUGHAN (2009): *The radiative forcing potential of different climate geoengineering options*. Atmos. Chem. Phys. Discuss. 9: 2559-2608.
- LUKŠIČ, A. A. (1999): *Rizična tehnologija: izziv demokraciji*. K politični ekologiji. Inštitut za ekologijo in Časopis za kritiko znanosti 193, Ljubljana.
- LOVELOCK, J. E. IN C. G. RAPLEY (2007): *Ocean pipes could help the earth to cure itself*. Nature 449: 403-403.
- LOVETT, R. (2008): *Burying biomass to fight climate change*. New Scientist 2654: 32-35.
- MITCHELL, D. L. IN W. FINNEGAN (2009): *Modification of cirrus clouds to reduce global warming*. Environmental Research Letters 4. <http://iopscience.iop.org/1748-9326/4/4/045102/fulltext> (16. november 2010).
- PAULL, J. (2009): *Geo-Engineering in the Southern Ocean*. ELEMENTALS – Journal of Bio-Dynamics Tasmania 93: 16-20.
- RITCHEL, M. (2007): *Recruiting Plankton to Fight Global Warming*. The New York Times. [http://www.nytimes.com/2007/05/01/business/01plankton.html?\\_r=1](http://www.nytimes.com/2007/05/01/business/01plankton.html?_r=1) (15. november 2010).

- ROCO, M. C. IN W. S. BAINBRIDGE** (ur.) (2003): *Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science*. Dordrecht: Springer.
- ROMM, J.** (2007): *Geo-Engineering is NOT the Answer*. Climate Progress blog. <http://climateprogress.org/2007/08/15/geo-engineering-is-not-the-answer/> (16. november 2010).
- ROMM, J.** (2009): *The best stimulus*, Part 1: What is geo-engineering and adaptation and CO2 mitigation all in one? Climate Progress blog. <http://climateprogress.org/2009/01/04/green-stimulus-geoengineering-adaptation-mitigation-urban-heat-island-mitigation-cool-roofs/> (16. november 2010).
- ROSS, A. IN H. D. MATTHEWS** (2009): *Climate engineering and the risk of rapid climate change*. Environmental Research Letters 4. <http://iopscience.iop.org/1748-9326/4/4/045103/fulltext> (16. november 2010).
- SALTER, S, G. SORTINO IN J. LATHAM** (2008): *Sea-going hardware for the cloud albedo method of reversing global warming*. Phil. Trans. R. Soc. A 366(1882): 3989–4006.
- SCIENCE DAILY** (2008): *Geoengineering Could Slow Down Global Water Cycle*. <http://www.sciencedaily.com/releases/2008/05/080527155519.htm> (16. november 2010).
- STEFFEN, A.** (2009): *Save the Holocene! Worldchanging*. <http://www.worldchanging.com/archives/009704.html> (16. november 2010).
- STEHR, N. IN H. VON STORCH** (2009): *Climate and Society*. Singapore: World Scientific Publishing Co.
- STIX, T. H.** (1993): *Removal of chlorofluorocarbons from the troposphere*. IEEE International Conference on Plasma Science. Vancouver, BC, Canada.
- STRAND, S. E. IN G. BENFORD** (2009): *Ocean Sequestration of Crop Residue Carbon: Recycling Fossil Fuel Carbon Back to Deep Sediments*. Environ. Sci. Technol. 43(4): 1000-1007.
- TELLER, E., L. WOOD IN R. HYDE** (1997): *Global Warming and Ice Ages: Prospects for Physics-Based Modulation of Global Change*. <https://e-reports-ext.llnl.gov/pdf/231636.pdf> (16. november 2010).
- TRAUFFETER, G.** (2009): *Slowing Global Warming with Antarctic Iron*. Spiegel Online. <http://www.spiegel.de/international/world/0,1518,599213,00.html#ref=rss> (16. november 2010).
- VERGANO, D.** (2009): *Hurricane-calming technology? Bill Gates has a plan*. USA Today. [http://www.usatoday.com/weather/research/2009-07-15-gates-hurricanes\\_N.htm](http://www.usatoday.com/weather/research/2009-07-15-gates-hurricanes_N.htm) (16. november 2010).
- WATTS, R. G.** (1997): *Cryospheric processes. Engineering Response to Global Climate Change: Planning a Research and Development Agenda*. CRC Press.
- WINGENTER, O. W.** (2007): *New Directions: Enhancing the natural sulfur cycle to slow global warming*. Atmospheric Environment 41(34): 7373–7375.
- UNITED NATIONS** (2010): *Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques*. Center for a World in Balance. <http://www.worldinbalance.net/intagreements/1976-envmodification.php> (16. november 2010).



Tomislav TKALEC, PhD  
Assoc. Prof. Andrej A. LUKŠIČ, PhD

## ENERGY TRANSITION AND BARRIERS TO ITS INTRODUCTION

**Abstract:** Energy transition is a concept that originates from the necessity of solving environmental problems and conflicts in the energy sector. It originates from environmental tradition and advocates transition from environmentally and socially controversial sources of energy to renewables. That also means a shift from large centralized production units (mainly based on fossil and nuclear energy) to smaller, dispersed ones. This decentralization process inherently leads to democratization of the electricity sector, as large energy companies are losing their power and position in the energy policy arena, because there are more and more smaller actors appearing in it. However, when trying to change the electricity system, many obstacles emerge. From economics, presence of old energy paradigm, path dependence, inertia of electricity system, power relations between actors, institutional lock-in, to perceptions and values of the dominant actors. All barriers are reflected in the energy policy arena, which is dominated mainly by large energy companies, that don't want any changes. Demands for change come from non-dominant actors, mainly from civil society actors and others, that are pushed to the edge of the arena. Therefore, decision-makers should recognize their role, change institutional structure of the energy policy arena and open it to various actors that can add new qualities to decision-making processes and outputs.

**Key words:** energy transition, energy policy arena, policy actors, barriers for change, renewable energy sources, decentralization

## INTRODUCTION

The belief is gaining ground that we need to radically change the structure of our electricity system in order to minimize the environmental impact of energy production and its use. Fossil energy sources enabled the progress of human civilization. However, we are now faced with the consequences in the form of devastated ecosystems, climate change and adverse health effects (McElroy, 2010: 2). Therefore, the future of energy use will not only be determined by availability of resources and by the techniques of extraction and transformation of energy sources, but also by the need to ensure that energy use does not change the key parameters of the biosphere beyond specified limits related to long-term preservation of global civilization (Smil, 2003: 3).

Many people today believe that the future will take care of itself, and are thus merely perpetuating the established unsustainable patterns of caring for themselves. Others think differently: being aware of the power and potential not available to our predecessors, they are addressing environmental, social and economic problems. We have the knowledge and technology to address the growing, unpleasant challenges. In the 1970s, people began to explore issues that had been previously ignored: destruction of the natural environment, risk of using nuclear energy, acid rain, and global warming have gradually found their way onto the political agenda. In the process of finding solutions to



environmental problems and conflicts in the (electric) energy policy arena, the concept of energy transition<sup>1</sup> had started to develop, which basically advocates for a transition to renewable energy sources and energy efficiency.

An illustrative example of this process is Germany, where in the past almost the entire energy sector was dominated by only four large companies: RWE, E-ON, EnBW, and VEAG. This situation changed considerably with the rise of decentralized renewable energy sources (RES) and the establishment of the support scheme for them. In 2012, German citizens (individuals, farmers, co-operatives) owned no less than 46% of the RES capacity in the country; 41% of the RES capacity was owned by other institutional investors, with the above-mentioned four large companies owning less than 13% of the total RES capacity in the country (Borchert, 2015). Another illustrative example is Denmark, where a transition was made from less than twenty large central power plants in the 1980s to a decentralized model with more than four thousand small-scale power plants, mostly owned by individuals and cooperatives (Brown and Sovacool, 2011: 250). Such transformation of the energy sector makes it possible for individuals, co-operatives and local communities to be at the forefront of the process.<sup>2</sup>

<sup>1</sup> German: Energiewende.

<sup>2</sup> An interesting fact is that this transition is made possible precisely by the liberalization of the energy sector and market, which began in the 1990s. This liberalization set a broad institutional framework which allows any individual or community – therefore a

As a result, the impact of large energy companies is diminished, their concentrated power is decentralized, and their profits dispersed.

The Slovenian electricity system is one of the smallest of its kind in Europe, and it is this small size that allows for faster implementation of changes. However, as with every institutionalized system, there are barriers here, too. New solutions, such as small-scale distributed RES power plants in this case, are often criticized as immature and technically incompatible with the electricity system. Yet the barriers to change are not just technical, but above all social, political and institutional.<sup>3</sup> In introducing changes, we are met with barriers at the level of individual actors who

---

.....  
much wider range of actors than just energy companies – to set up its own power plant and generate electricity (Robyns, 2012).

<sup>3</sup> Economics and price of decentralized (RES) units are also being portrayed as the main barrier referred to by the management of energy companies, regulators, analysts and decision-makers (Awerbuch, 2008; Sovacool, 2008). Energy policies are largely based on the application of the principle of lowest cost, which is used by the decision-makers to evaluate potential technologies. However, these approaches are consistently biased in favor of conventional technologies, especially considering the overall context of the development of technologies and practices in relation to subsidizing and investing in research and development of fossil and nuclear energy (Jacobsson and Lauber, 2006). In 2012, the global subsidies amounted to USD 544 billion for fossil fuels and to USD 101 billion for RES (IEA, 2013). As an example, out of about USD 9.4 billion invested in research and development in the energy sector in all Member States of the International Energy Agency in 2004, as much as USD 3.1 billion was invested in nuclear fission, with nuclear fusion receiving USD 700 million, which was more than double the photovoltaic (Smil, 2008: 339). In the US, 96% of USD 145 billion spent for research and development in the energy sector between 1947 and 1998 ended up in the hands of the nuclear industry.

follow their own institutional logic, their own interests, beliefs and values stemming from the established paradigm. At the institutional level, barriers appear in the form of institutional structures and practices, while at the systemic level, they appear as system rules and are reflected in the adherence of the system to the existing technologies and to management mode which is dependent on the prior development of the system and institutions. All the barriers are reflected in the energy policy arena. It is due to these specifics of the energy policy arena that it is not easy to introduce changes, despite the fact that a significant amount of new distributed production units were installed in Slovenia during the support scheme for renewable energy and combined heat and power (CHP). Strong, conventional actors do not want to change, and the energy arena, with its characteristics preventing significant impact of progressive marginal actors, is largely being dominated by large energy companies.

This article deals with the issue of barriers to change in the power generation sector. However, the scope of the research is not the technical, but rather the political aspect of these barriers. Through the concept of policy arenas, a connection is established to the barriers at the level of individual actors, institutions and system. We shall consider in particular the field of electricity production rather than the concept of energy efficiency, with the

latter being understood as a precondition for replacing current primary energy sources (fossil and nuclear), and as the foundation of the new energy paradigm.

## ENERGY POLICY ARENA

Policy arena can be defined as a place of political action where social issues are politically thematized and become a subject of policy (Kitschelt in Lukšič, 2005: 98). In the concept of policy arenas, Kitschelt connects two notions that represent the key to understanding the political: the first – *policy* – comprises functional sets of issues of social reproduction, whereas the second – *politics* – varies systematically according to the institutional form of the policy and policy processes. The concepts are interconnected and dependent on the structural and procedural characteristics of the policy area (Kitschelt in Lukšič, 2002: 1023–1024).

The energy policy arena is part of the infrastructure arenas, which are oriented towards establishing and maintaining the conditions of the market capabilities of the capital in the economic-reproductive process. This includes general and specific conditions of production which are not a direct result of the logic of capital and must therefore be politically regulated and managed (Kitschelt in Lukšič, 2005: 99–100). Energy policy arena is faced with considerable legitimacy problems because of the difficulty in addressing new energy-

policy issues through traditional decision-making processes (Kitschelt, 1996: 222). Due to the current structure of the energy policy arena, opening of political arenas, i.e. entry of new actors into the communication and decision-making process, is also limited to only certain actors (Breukers and Wolsink, 2007).

The operation of economic entities is framed by public policies related to market mechanisms, regulation and supervision of their operation. Therefore, any attempt to change public policies in a way that could transform these frameworks finds itself under close scrutiny by the economic actors, especially when it comes to policies that impose additional work, costs, supervision, or regulation, or introduce additional competition. In such cases, economic actors make great efforts to gain influence in decision-making processes, investing much of their resources into this objective. It is also clear that not all actors have the same access to and influence on the decision-making processes. The institutional structure of the energy policy arena allows stronger actors easier access and greater opportunities to influence decision-makers, with the arena remaining largely closed (*polity*) for smaller and new actors, not allowing them significant influence.<sup>4</sup>

---

<sup>4</sup> Although some of the smaller actors have access to the arena, may get involved in certain stages of the decision-making process, and are able to express their views, in the vast majority of cases their proposals and comments are ultimately being ignored. It could be concluded that the possibility of participa-

The arena sets out both the rules for the participation of actors and the possible results. It is precisely these institutional rules (politics), or institutional logic – which includes sets of socially constructed assumptions, values and beliefs – that defines the appropriate structures, practices and behavior, and legitimizes established actors, especially the energy companies, as experts and gives them power (Sine and David, 2003). Institutional structure is the product of development of industrial society – it responds to the needs of the times in which it was created. However, as recognized by Beck (in Lukšič, 2011: 107), these structures, relicts of their time, are unable to respond to the demands for change. We can also speak of institutional lock-in (Walker in Hofman, 2005: 57), as the nature of the institutions can pose a barrier to the introduction of innovation. The functioning and policies of the institutions will not change as long as there are no changes in the structure of the institutions.

The energy policy arena is composed of several actors, which represent different interests: financial, economic, environmental, industrial, as well as the interests of civil society. The balance of power among these actors plays

---

tion in the process serves merely as a cover for legitimization of the process. Communication processes seem to run only in one direction: from the decision-makers and experts to the public, where already-made decisions are being promoted instead of providing the public with the opportunity to participate in the decision-making process.

a crucial role in the events inside the arena and is key to understanding these processes (Safarzynska and van den Bergh, 2010: 744). On one hand, there are actors, who are trying to maintain the status quo, taking part and joining forces inside the arena (Söderbaum, 1994; McSpadden and Culhane, 1999). They are currently the dominant force. Owing to their position as the institutionalized actors, large-scale electricity producers have great structural power inside the arena, both due to their monopoly position on the market and their large financial resources (Bernhagen, 2007).<sup>5</sup> They are always working towards maintaining or increasing their power, almost without exception seeking to implement and maintain the techniques and technologies which are in line with this objective (Marglin in Nitzan and Bichler, 2009: 233). The conventional actors perceive policy proposals aimed at stricter environmental standards, reducing greenhouse gas emissions and similar as a direct attack on their role and existence, and are therefore

---

<sup>5</sup> The structural power of large energy companies originates in their monopoly position in electricity generation. Companies have been able to decide which technology and energy source they will use, and others were prevented from entering the sector. This allowed the companies to decide for themselves how the electricity is generated and where to invest resources for research and development, thereby de facto deciding which technologies are to be developed. They supported the development of technologies and resources, which they were already using, and deliberately neglected alternatives, in particular RES, thereby creating homogeneity of industrial processes and technologies (Sine and David, 2003; 193–194).

trying to suppress and minimize the effect of such proposals. They are also seeking to suppress the promotion and use of renewable energy sources, because they see them as a threat to their own monopoly position (Kranz, 2008; Mallon, 2006; Safarzynska and van den Bergh, 2010; Sovacool and Hirsh, 2007). In this way, actors who are pushing for the transition to RES and energy efficiency (EE) often find themselves in a powerless position, competing against the highly institutionalized actors with good access to the decision-making process and a lot of resources available for pursuing their own interests (Mez et al., 1997: 307).

Slovenian energy policy arena is largely dominated by actors with conventional view of the electricity sector. Energy companies, along with the part of the profession which is closer to the conventional orientation, represent the dominant actors, largely related to policy makers. On the other side, there are many emerging actors – civil society with active non-governmental organizations, part of the profession and small-scale electricity producers – with a rather marginal role in the arena. A large share of them are in favor of changes, including better environmental performance of the electricity sector, a larger share of renewable energy sources, and – to some extent – greater public participation in the decision-making processes. Consumers and the general public have no perceived impact or role in the arena. They are located at the end of the

communication process, which means that they are merely informed of the decisions already taken. In a way, media are part of the arena as well, but merely in the role of reporters of the events and activities. To a certain extent, they also investigate the links between different actors and irregularities in the implementation of projects, but they are not active promoters of change.

### **DOMINANT ACTORS IN THE ARENA DO NOT WANT CHANGES**

The actors who have become domesticated in the conventional energy arena will not promote energy transition, but will rather fight against the shift towards the new paradigm and decentralized RES, because this could endanger their positions and interests and because they are used to the existing situation and modes of operation (Gould, 2002; Hvelplund, 1997; Kellow, 1996; Matthews, 2001; Sine and David, 2003).<sup>6</sup> The aversion of large energy companies, regulators, operators, and decision makers to decentralized systems does not concern technology as much as the institutional culture.

<sup>6</sup> Large energy companies will oppose and block changes, because they are trained to think only in the terms of large centralized power plants. On the other hand, consumers cannot opt for RES because they have no choice. As a result, large-scale power plants, compatible with the technical, economic, political and cultural structures of the existing system, have a much greater chance of being selected than distributed RES (Sovacool 2008, 8). At the same time, each kilowatt hour produced from renewable energy sources owned by the consumers themselves means less demand for the services of the energy companies, with their income potentially at risk.

Operators of the system are trying to preserve the traditional, tried and tested regulatory and management practices which have been in place for a century. They are trying to maintain control of the system which has been created by them (and their predecessors), making it difficult for new actors to enter (Sovacool, 2008: 171).<sup>7</sup>

Large energy companies have invested significant resources in their technologies and in the development of knowledge and skills to manage these technologies. Thanks to their market power, they have become powerful political actors and they do not want to change existing technologies (Sovacool, 2008: 141).<sup>8</sup>

<sup>7</sup> Sovacool and Hirsh (2007: 160) point out that large institutionalized actors want to maintain their monopoly positions and often see themselves as managers or “masters” of the technological and social development which makes modern lifestyle possible. The management and employees of some companies take pride in the belief that they have so far successfully managed the electricity system, and are opposed to the idea of “external actors” having the opportunity to access or connect their own production facilities to the system which has been carefully constructed and managed. The actors who helped establish modern electricity systems continue to exercise great influence, not only in the arena itself, but also in terms of our perception of which (if any) changes can be achieved within the sector (Borbely and Kreider, 2001). They proclaim themselves some sort of bastions of the current system and the preservation of the privileged positions of power. There is also the emotional attachment of engineers and physicists to large centralized power plants, particularly to nuclear power plants (Grubb, 1990).

<sup>8</sup> Strategies of conventional actors to systematically oppose changes include: (1) hindering entry of competing technologies to the political agenda; (2) opposing practical implementation of any new technology which happens to come on the political agenda; and (3) attempts to seize the new technology if opposition to it was not successful (Hvelplund, 1997: 159–160). In this case, the conventional actors seek to place RES



This can be clearly seen with operators of thermal power plants, who seek to build new coal-fired generating units, and in the desire of the owners of nuclear power plants to build additional reactors. Skills in the use and management of technology play a vital role in choosing the solution, as an actor will always pick an already-known solution. Companies will consider only continuation of the exploitation of resources and technologies which they already know, even though they are aware of the negative impacts of their use. They do not want to invest time and resources in learning about new technologies, which would also bring about changes in other areas, from operating methods to financing and engineering, so they prefer to stick to the tried and tested (Jone in Sovacool, 2008: 171).<sup>9</sup>

---

within the framework of the existing energy system and their values, and prevent changes for which RES have high potential: changes in ownership, control, autonomy, and redistribution of power among the actors.

<sup>9</sup> The perceptions of individuals within the electricity system have been shaped by their own experiences and mindsets, which makes these individuals more susceptible to a known form. It is difficult to prefer and opt for something with which we have no experience. At the same time, it is difficult to change a system that has been evolving for a century, as its managers believe that it is the best possible, regardless of some weaknesses. What is significant is that the majority of decision-makers have also adopted a similar mindset (after all, many have come from the energy sector), specifically, that large centralized power plants are the best way to provide electricity. This belief, which is deeply rooted among the main actors in the energy arena, diverts the attention away from new or alternative options.

## BELIEFS AND VALUES INFLUENCE THE DECISIONS OF THE ACTORS

Once technological landscapes are established, people integrate them into their consciousness and they become virtually invisible.<sup>10</sup> According to Nye (in Sovacool in Brown, 2007: 7), the subject perceives them as natural, because they are present since the beginning of the individuals' historical consciousness. The established energy systems create structures that form the basis of the human expectations of what is normal and possible. Every individual lives within a framework of such natural assumptions of potential and optimal tools, technologies and modes of system management. These assumptions contribute to the perception of the environment as self-evident and as something which has always been there (Sovacool and Brown, 2007: 7). As a result, changes to this environment, including management modes and systems, seem hard to comprehend.

---

<sup>10</sup> Most people believe that the status quo (the current status) is legitimate, just and fair. In the need for justifying the status quo and thereby satisfying various social and psychological needs – including the epistemological need for consistency, certainty and meaning, existential need to manage threats and risks, and relational need for comprehension of the same reality as others – these needs determine the thoughts, feelings and behavior (Joost and van der Toorn in Dowding, 2011: 649–652). Hence, people process and remember information selectively. The information consistent with their values and position is accepted, the rest is discarded. As long as the current system is accepted as legitimate and good, it is psychologically difficult to imagine an alternative one.

An individual's beliefs, which form the basis for his opinions on the energy system, play an important role. Beliefs can be understood as the sum of knowledge, competencies and routines embedded in the individual's way of thinking. It is difficult to change them, and they can play a pivotal role in the decision-making processes. That's why we need to recognize them, put them in the spotlight and try to analyze the underlying assumptions. The dominant actors in the electricity system have long been convinced that centralized electricity generation in large-scale power plants is superior, more efficient and more reliable than decentralized generation on a small scale, and that small RES are unsuitable for this system. To a large extent, these beliefs are still present today. Nevertheless, they have become less dominant, since it has become clear through the processes of research and actual practice that most experts do not know how much RES can be integrated into the current system. This was the prevailing mindset in the second half of the 20th century, reinforced through technical education and engineering solutions (Hofman, 2005: 51). Decision makers, energy companies and technical professionals are not always able to recognize the fact that their attitudes are also influenced by their own values, beliefs and emotions. As a result, most of them still believes that the logical and desirable way forward is a system with large, centralized units. This

reflects the limited ability to separate from the past achievements of the electricity system and from the technologies that have made it possible, which is particularly prominent in technical professionals and most of the industry's engineers (Hofman, 2005: 90).

## **OLD PARADIGM AND DOMINANT ACTORS**

Conventional fossil and nuclear energy technologies are based on a well-established dominant paradigm that considers the energy problem as merely an issue of expanding the available (domestic) resources in order to meet the forecasted demand. This paradigm assumes that the use of electricity is essential for economic growth. It demands large and centralized facilities for its generation, placing faith in technological ingenuity to overcome the issues of resource depletion and environmental problems (Sovacool, 2008: 233). This old paradigm of growth does not recognize the limitations of the planet and is regarded by Gale (in Shi, 2004: 31) as an ideological structure that promotes the interests of strong actors. It guides decision-making and conceptualization of strategic policies, as well as decision-making processes in large companies in the energy sector (Hofman, 2005: 83; Sovacool and Hirsh, 2007: 146).

Corporatist philosophy, still caught in the old paradigm of growth, is based on the view that decentralized RES electricity generation should fulfill all the needs of conventional energy – but

better in almost every respect, from economics and reliability to environmental acceptability, if it is to compete with the conventional one (Glover, 2006: 261). However, there are real concerns about the capacity of decentralized generation to meet all the energy needs of our industrial society, especially the economy, which is based on constant growth and widespread consumption. Energy consumption is too high, and if it is not reduced, it is currently difficult for renewable energy sources to replace all fossil and nuclear energy (Glover, 2006; Kitschelt 1996; Kranz, 2008). The fact that the RES sector is not yet strong enough for the transition to be (politically) feasible further complicates the process. The main reasons corporations and decision-makers do not find the transition attractive is their focus on profit and stability of industrial production, because at the moment, maintaining economic stability and political power with the “business-as-usual” model seems the safest option (Kranz, 2008: 40).

### **SYSTEM LOCK-IN IN CURRENT TECHNOLOGIES AND MANAGEMENT MODES**

One of the main characteristics of the electricity generation and transmission system is that it is based on components and technologies that are interconnected in a way that makes the transition to a fundamentally different technologies or system design very difficult. It is a complex system that hardly accepts changes and one

which origins date back to the nineteenth century. Through time new elements, that fit its mode of operation, are gradually being added to the system. Socio-technical system that is connected to the electricity system is also being adjusted through the process of institutionalization, which includes enhanced coordination of activities through regulatory, normative and cognitive institutions. In such a perspective, new concepts and technologies that are not in line with existing system design are not incorporated, as this would require changes in system’s components, technologies and institutions (Hofman, 2005: 73–74).

### **PATH DEPENDENCE**

Difficulties in developing and spreading alternatives in the electricity sector can be partially explained with the concept of path dependence. Path or behavior dependence occurs when: 1) experience accumulate in the process of increasing acceptance and use of technology, that lead to further development of skills and competences associated with this specific technology; 2) increasing number of users expand the availability and diversity of services related to a specific technology; 3) economies of scale lowers the production costs of technology; and 4) more and more technological components become part of infrastructure for selected technology (Arthur in Hofman, 2005: 24). All these effects create

positive feedback loops that strengthen the position of specific selected technology in relation to other alternatives. Moreover, at the level of technological systems the emergence of a dominant design, which includes both technical and social elements, facilitates expansion of the system in its early stages. But it may also impede changes in later stages, as it will prefer to choose technologies that match the dominant design, rather than those that do not comply with it (Unruh in Hofman, 2005: 24).

Technology depends on social, economic, cultural and political forces, while also at the same time technology determines human and social relations. This co-evolution is often path dependent, due to the difficulty of remodeling configurations of technologies, which are anchored in social processes, consumption patterns and lifestyles. Path dependence concept is useful in explaining failures of policies for promoting changes in production and consumption, although their impact on the environment is obviously intensified. Development of institutions is also path dependent. They are developing along a certain path, which is not easy to redirect or change significantly. Once they are settled and modes of operation become obvious and routinized, it is very difficult to change them. At the same time sources of path dependence become formal and informal institutional rules (Hofman, 2005).

This framework encourages the dominant innovation pattern of relatively predictable, incremental improvements from existing networks and technologies. This innovation pattern does not challenge the way in which technology is embedded into society. Dominant companies will develop such innovations that are based on their established organizational and technical capabilities, therefore they will go mainly for the evolution of technologies they already know. Technology is part of wider configuration, which consists of several mutually tuned components, such as infrastructure, knowledge, skills, industry organizations, regulatory standards and cultural norms. In a large system, such as electricity system, majority of established actors is linked to the same system components. That means they read the same professional literature, study the same scientific papers, are educated by the same educational and research institutions, follow the same regulatory standards. Therefore, when confronted with same problem, they come up with same or very similar solutions (Lowi in Kellow, 1996: 32). Activities and interactions of actors are embedded in social and technical components that constitute the technological system. They are lead and limited by rules and principles on which the system is based (Hofman, 2005: 42–43). The system produces and follows such knowledge that continues with

established practices. These are then followed also by individuals and organizations.<sup>11</sup>

At the company level, decision-making processes are largely determined by routines that have been developed on the basis of cumulative knowledge and accumulated experience and expertise. In this manner, the directions of innovation and research activities in the company are determined as well. The result is incremental innovation, which introduces only minor changes and often reinforces the domination of established companies. At the sectoral level, the adoption and further development of specific technologies or products stimulates their standardization. The whole sector and regulations adopt to these technologies, which makes it difficult for other technologies to enter the sector, because

---

<sup>11</sup> Rip and Kemp (in Hofman, 2005: 42–43) introduce the term technological regime for set of rules, that include complex engineering practices, technologies of production process, product characteristics, skills and procedures, ways of dealing with important objects and persons, ways of defining problems – all of them built in institutions and infrastructure. When the regime is emerging and evolving, different elements are becoming closely interdependent. The result is that involved actors see the existing technology system as natural and as the only one possible. Members of technological communities have undergone a long process of learning and socialization that produce assumptions about technology, which these actors are strongly holding on to (Lampel in Hofman, 2008: 43). These are cognitively, professionally and economically deeply rooted in existing regimes and strive for development of evaluation routines, which filter out information that is not in accordance with their beliefs about the technology. If alternatives fall outside the reference frame, they are intuitively rejected, because when assessing their compliance with existing technological regime, focus is on their problems and limitations.

the alternatives and their characteristics are viewed through the prism of the existing ones (Hofman, 2005: 44–46).

## MARGINAL ACTORS AS THE MOTOR FOR CHANGES IN ENERGY POLICY ARENA

Demands for change, innovation and introduction of new technologies have always come from the non-dominant actors outside the core of traditional electricity system. Often these voices came from civil-society movements and NGOs, who managed to impose certain changes in cooperation with some decision-makers, and new companies that are trying to place themselves on the market with (radical) innovations, thereby displacing the existing dominant models (Brown and Sovacool, 2011; Hvelplund, 1997).

It is evident from the analysis carried out on the basis of interviews<sup>12</sup> with relevant actors in Slovenian energy policy arena, that primarily dominant actors (large energy companies, policy makers and the conventional part of profession) believe that calls for change and implementation of change must come from their side, as their involvement in the system gives them best

---

<sup>12</sup> Interviews for the purpose of doctoral dissertation were carried out between August 2014 and April 2015. They were conducted with relevant actors in the Slovenian energy policy arena (representatives of the Ministry of Infrastructure, the National Assembly, energy companies, experts, NGOs, associations of renewable electricity producers and media). Records of interviews are stored by first signed author of the article.



knowledge about what is good for the system and which changes are welcomed. A large majority of these actors do not recognize civil-society movements, NGOs and new companies – actors that do not have central role in the arena – as a force that is demanding and calling for innovation and change. Dominant actors that are occupying central part of the energy policy arena do not see others as relevant and do not allow them to become more relevant. They do not recognize them as holders of relevant (technical) knowledge and sufficient competencies to be able to be substantively involved in the discussion about the conceptualization of the electricity sector and to change “their” system. At the same time they do not see significant reasons to change the current system of electricity generation. They partly agree that the system must become more environmentally acceptable, but other attributes of transition, in particular the social aspects (redistribution of power in the arena, democratization and increasing role of public, enforcement of the prosumer concept), are not on their mental map.

Concept of energy transition as a comprehensive transformation of society and economy arises from the activities of social movements in the 1970s. These were spreading out mostly in Germany, as a way of resistance against the use of nuclear energy and growing from concerns about climate change and from opportunities offered by technological progress (Hockenos, 2015).

Counter-cultural and social movements of that time were the carriers of the idea that alternative energy sources can bring social change in the developed world. Alternative energy sources were seen as means to escape from energy systems managed by state or corporations, as a path to independence, autonomy, local ecology, social changes, and reduction of environmental impacts (Glover, 2006: 252).

From the conducted interviews with actors in Slovenian energy policy arena it can be concluded that the majority of dominant actors is committed to the old energy paradigm, which is based on large centralized power plants. They do not see renewables as real alternative able to replace fossil and nuclear sources, and therefore continue to focus on large generation units that should be, according to their view, core of the system in the future as well. Large energy companies that would like to continue to operate in customary manner are following institutional logic and technologies with which they have years of experience. Decision-makers see energy sector as supporting pillar of the economy, that should entirely follow the national economic objectives.

Meanwhile, actors who are on the outskirts of arena (NGOs, representatives of RES associations, progressive part of the profession) think differently. They see the energy sector as a supporting pillar of the wider society and citizens, that should provide them with energy in a socially,

economically and environmentally acceptable manner. They are highlighting the necessity for change and energy transition that would, in addition to larger environmental acceptability, offer further possibilities for democratization of society, which would enhance the role of citizens and reduce the role of strong actors in the arena, namely large energy companies that dictate the development in the current situation.

Entry of new social movements into the policy arena in the 1970s brought the politicization of issues around which decisions were previously made strictly in the closed policy arenas. Environment, and consequently energy, have established themselves as one of the most important issues. Social movements have sought to “spread postmodern values that emphasize care for a higher quality of people’s life and well-balanced development that goes beyond the paradigm of old growth-safety policy, which had until then understood damage to the environment as a byproduct of economic growth” (Bahor, 2011: 441). These values have become part of the energy transition that conceptually falls within the framework of the new (energy) paradigm and includes environmental, social and economic component.

## ENERGY TRANSITION

Sustainable energy transition entails the use of environmentally acceptable sources and technologies, and transition to energy efficiency and

decentralized renewable sources.<sup>13</sup> Emphasis is on the latter. But such direction would require a significant change in energy policy away from focusing solely on large, centralized power plants using fossil and nuclear energy that are current base of the system (Walker and Devine-Wright, 2008: 497). Due to specific advantages of distributed electricity generation (flexibility, reduction of transmission losses, higher control by the final consumer), the latter may lead to a paradigm shift in the energy sector. It also reduces the impact on environment and health, reduces the risk from nuclear energy, empowers local communities, increases social cohesion, demands internalization of external costs, limits climate change, provides greater democratic accountability in selection of technologies, improves governance of communities, and includes precautionary principle (Stirling, 2008: 6).

In addition to changes in techniques and technologies, such “radical technological change”

---

<sup>13</sup> Technically, distributed electricity generation means dispersed distribution of production facilities (power plants) across the whole network and located close to end users (Borbely and Kreider, 2001; Warwick, 2002; Randolph and Masters, 2008; Kranz, 2008; Robyns, 2012). Power plants are small, they are generally using renewable energy sources that pollute less than fossil fuels and are less hazardous than nuclear energy. They take advantage of local resources and reduce losses on the transmission network. Existing electricity system will require technical upgrades, due to the integration of smaller units on a large scale and due to the specifics of these units (variability of electricity generation that according to availability of the source). Decentralized generation works optimally in combination with energy storage, demand side management and intelligent and flexible system of smart grids.

includes changes within organizations, institutions, regulations, policies, economies and society itself (Hvelplund, 1997). It means democratization of electricity sector, where large energy companies with conventional centralized power plants traditionally dominate the market, which gives them both economic and political power and thus domination in the energy policy arena (Matson and Carasso, 1999). On the other hand, decentralized renewables can directly involve citizens and individuals into electricity generation, giving them opportunity to generate some income that can benefit local community, whereas in the case of large energy company's dominance it would remain in the hands of the few. They also promote self-sufficiency and independence of citizens and communities.

The need for electricity in society is still mainly satisfied by large centralized power plants, but the technology can be also directly accessed by end users, who can generate their own electricity by themselves in small distributed power plants. Technology has adapted in a way that every one can generate its own electricity. This is associated with unlocking of investment opportunities that occurred in the last two decades: development and price competitiveness of technologies have made it possible for an individual to fund a small power plant, wind turbine can be funded by smaller local community, while for large

centralized power plant there is still need for a strong institutional investor.

Process of transformation from centralized, large units to a distributed system of electricity generation increases the diversity and number of actors in the energy policy arena, set of technologies for electricity generation, and options of operations, management and ownership (Walker and Cass, 2011: 4). In general, decentralization is defined as a process of power and resources transfer (Kranz, 2008: 78). In the process, energy companies and workers in the energy sector are losing their power to control the entire system or its main parts. This power begins to divide and becomes dispersed among many (small) electricity producers. Because there are many of them and therefore their joint power is getting stronger, they are getting more and more acknowledged and taken into consideration in decision-making processes (Mitchell, 2011).

Energy transition brings changes, although large energy companies do not want it. Large actors in the energy policy arena are not prepared for rapid reactions and restructuring, due to their bureaucratic and other characteristics. Their power decreases with their loss of market share, broader competition, and lower revenues and profits. Change in power relations allows further democratization. It is not only about citizens' ability to own their own power plants and become independent from large electricity producers, but

it also leads to positive changes in individual's perception and attitude towards energy and environment, and to increased participation in energy-environmental issues (Darkey, 2012: 209). With the entry of general public and other civil society actors into the energy policy arena, their demands for environmentally acceptable (non-fossil), less risky (non-nuclear) and more inclusive ways of electricity production become louder. This represent a deviation from the the arena, where "the political, social and natural conditions of life" are shaped solely by decisions of "the technocrat-economical political actors" (Lukšič, 2011: 107).

## CONCLUSION

In order to achieve changes in the electricity sector, we need to identify the barriers, challenge the actors that benefit from current situation, and offer theoretical support for potential alternatives. In the complex connectedness and mutual inter-linkage it is difficult to identify barriers that are to be addressed first. Energy transition is facing uncertainty about the ability of decentralized sources for replacing the conventional ones, it is confronted with economic and political interests of those who are struggling to maintain the status quo, and with electricity consumers who are reluctant to change their (consumer-oriented) behavior. But Smil (2008: 363) points out that substitution of primary energy sources requires transformation

of our lifestyles. This inevitable transition to a post-fossil world should start as soon as possible.

It can not be expected that dominant actors in the energy policy arena will be drivers of change or that they will accept it without resistance. Large energy companies will not support changes or directions towards smaller, decentralized renewables, as that would mean changes in their own organizations and loss of their influence at the expense of other actors that have already mastered these new technologies. However, as shown in cases in the introduction, changes are possible. In Germany and Denmark, public authorities accepted changes in direction of energy policies. But how to undertake such a process? Decision-makers should recognize the role of civil society and other actors who do not have central role in the arena, but can add a new quality to the decision-making processes and their outputs. For achieving this, it is necessary to open the arena and change its institutional structure. Change in power distribution between actors in the arena can be a motor for structural changes and changes in dominance of actors, which would mean a greater role of presently non-dominant actors. But they must obtain that by themselves, as it is unrealistic to expect that current dominant actors would easily hand over their central position in the arena. How to achieve these changes remains a crucial question especially for the excluded actors.

## LITERATURE

- AWERBUCH, SHIMON** (2008): *The Role of Wind Generation in Enhancing Scotland's Energy Diversity and Security: A Mean-Variance Portfolio Optimization of Scotland's Generating Mix*. In Analytical Methods for Energy Diversity & Security, Morgan Bazillian in Fabien Roques (ur.), 139–150. Oxford, Amsterdam: Elsevier.
- BAHOR, MAJA** (2011): *Politična in ekološka pismenost v sodobnem svetu*. V Politološke refleksije: Znanstvena produkcija Centra za kritično politologijo 2009–2010, Andrej A. Lukšič (ur.), 436–446. Ljubljana: FDV.
- BERNHAGEN, PATRICK** (2007): *The Political Power of Business: Structure and Information in Public Policymaking*. New York: Routledge.
- BORBELY, ANNE-MARIE IN JAN F. KREIDER** (2001): *Distributed generation: An Introduction*. In Distributed Generation: The Power Paradigm for the New Millennium, Anne-Marie Borbely in Jan F. Kreider (ur.), 1–51. Boca Raton, London, New York, Washington D.C.: CRC Press.
- BORCHERT, LARS** (2015): *Citizens' participation in the Energiewende*. Available on: <https://www.cleanenergywire.org/factsheets/citizens-participation-energiewende> (27. avgust 2015).
- BREUKERS, SYLVIA IN MAARTEN WOLSINK** (2007). *Wind power implementation in changing institutional landscapes: An international comparison*. Energy Policy 35: 2737–2750.
- BROWN, MARILYN A. IN BENJAMIN K. SOVACOO** (2011): *Climate Change and Global Energy Security: Technology and Policy Options*. Cambridge, London: The MIT Press.
- DARKEY, DANIEL** (2012): *Democratisation of Environmental Governance: Perceptions and Attitudes of Township Women Towards the Environment*. Urban Forum 23: 209–219.
- DOWDING, KEITH** (ur.) (2011): *Encyclopedia of Power*. Los Angeles, London, New Delhi, Singapore, Washington DC: Sage Publications.
- GLOVER, LEIGH** (2006): *From Love-ins to Logos: Charting the Demise of Renewable Energy as a Social Movement*. In Transforming Power: Energy, Environment, and Society in Conflict, John Bryne, Noah Toly in Leigh Glover (ur.), 249–270. New Brunswick, New York: Transaction Publishers.
- GOULD, KENNETH A.** (2002): *Review Essay: The Democratization of Environmental Policy*. Rural Sociology 67(1): 132–139.
- GRUBB, MICHAEL J.** (1990): *The Cinderella options: A study of modernized renewable technologies*. Energy Policy 18: 711–725.
- HOCKENOS, PAUL** (2015): *The history of the Energiewende: Energiewende – the first four decades*. Available on: <https://www.cleanenergywire.org/dossiers/history-energiewende> (27. avgust 2015).
- HOFMAN, PETER S.** (2005): *Innovation and Institutional Change: The transition to a sustainable electricity system*. Twente: University of Twente.
- HVELPLUND, FREDE** (1997): *Energy Efficiency and the Political Economy of the Danish Electricity System*. In European Electricity Systems in Transition: A comparative analysis of policy and regulation in Western Europe, Atle Midttun (ur.), 133–166. Oxford: Elsevier Science.
- IEA** (2015): *World Energy Outlook 2013 Factsheet*. Available on: [http://www.worldenergyoutlook.org/media/weowebite/factsheets/WE02013\\_Factsheets.pdf](http://www.worldenergyoutlook.org/media/weowebite/factsheets/WE02013_Factsheets.pdf) (27. avgust 2015).
- JACOBSSON, STAFFAN IN VOLKMAR LAUBER** (2006): *The politics and policy of energy system transformation – explaining the German diffusion of renewable energy technology*. Energy Policy 34: 256–276.
- KELLOW, AYNLEY J.** (1996): *Transforming Power: The Politics of Electricity Planning*. Cambridge, New York, Melbourne: Cambridge University Press.
- KITSCHERT, HERBERT** (1996): *Oblika politične ureditve in energetske konflikt*. Ėasopis za kritiko znanosti, domišljijo in novo antropologijo 24(180–181): 221–226.
- KRANZ, KARSTEN** (2008): *Towards Distributed Energy Systems: Analysis of a network based on regenerative energy sources in the Federal State of Brandenburg, Germany*. Magistrsko delo. Cottbus: Brandenburg University of Technology.
- LOVINS, AMORY** (1977): *Soft Energy Paths: Towards a Durable Peace*. Harmondsworth, New York: Penguin.
- LUKŠIČ, ANDREJ A.** (2002): *Vloga države pri zagotavljanju nacionalnih interesov*. Teorija in praksa 39(6): 1017–1027.
- LUKŠIČ, ANDREJ A.** (2005): *Modificiranje in odpiranje okoljskih političnih aren*. Ėasopis za kritiko znanosti, domišljijo in novo antropologijo 33(219): 91–107.
- LUKŠIČ, ANDREJ A.** (2011): *Zavedanje državljanov o pomenu demokratiziranja političnih aren*. V Politološke refleksije:



- Znanstvena produkcija Centra za kritično politologijo 2009–2010, Andrej A. Lukšič (ur.), 105–121. Ljubljana: FDV.
- MALLON, KARL** (2006): *An A to Z of Stakeholders*. In *Renewable Energy Policy Politics: A Handbook for Decision-making*, Karl Mallon (ur.), 85–120. London, Sterling: Earthscan.
- MATSON, RICK J. IN M. CARASSO** (1999): *Sustainability, energy technologies and ethics*. *Renewable energy* 16: 1200–1203.
- MATTHEWS, MARY M.** (2001): *Institutions, Interests, Energy, and the Environment: Policymaking in Corporatism, Pluralism, and Beyond*. *Policy Studies Journal* 29(3): 407–413.
- MCELROY, MICHAEL** (2010): *Challenge of global climate change: Prospects for a new energy paradigm*. *Frontiers of Environmental Science & Engineering in China* 4(1): 2–11.
- MCSPADDEN, LETTIE M. IN PAUL J. CULHANE** (1999): *The Strategies and Tactics of Interest Groups: The Case of the Environmental and Energy Policy Arena*. *Southeastern Political Review* 27(2): 223–242.
- MEZ, LUTZ, ATLE MIDTTUN IN STEVE THOMAS** (1997): *Restructuring Electricity Systems in Transition. V European Electricity Systems in Transition: A comparative analysis of policy and regulation in Western Europe*, Atle Midttun (ur.), 3–12. Oxford: Elsevier Science.
- MITCHELL, TIMOTHY** (2011): *Carbon Democracy: Political Power in the Age of Oil*. London, New York: Verso.
- NITZAN, JONATHAN IN SHIMSHON BICHLER** (2009): *Capital as Power: A Study of Order and Creorder*. New York: Routledge.
- RANDALPH, JOHN IN GILBERT M. MASTERS** (2008): *Energy for Sustainability: Technology, Planning, Policy*. Washington: Island Press.
- ROBYNS, BENOIT** (2012): *Decentralized Electricity Production from Renewable Energy*. In *Electricity Production from Renewable Energies*, Benoit Robyns, Arnaud Davigny, Bruno Francois, Antoine Henneton in Jonathan Sprooten (ur.), 1–18. London: ISTE.
- SAFARZYNSKA, KAROLINA IN JEROEN C. J. M. VAN DEN BERGH** (2010): *Evolving power and environmental policy: Explaining institutional change with group selection*. *Ecological Economics* 69: 743–752.
- SCHLANDT, JAKOB** (2015): *Utilities and the energy transition: Fighting for survival: Germany's big utilities look for a future in the new energy world*. Dostop prek: <https://www.cleanenergywire.org/dossiers/utilities-and-energy-transition> (27. avgust 2015).
- SHI, TIAN** (2004): *Ecological economics as a policy science: rhetoric or commitment towards an improved decision-making process on sustainability*. *Ecological Economics* 48: 23–36.
- SINE, WESLEY D. IN ROBERT J. DAVID** (2003): *Environmental jolts, institutional change, and the creation of entrepreneurial opportunity in the US electric power industry*. *Research Policy* 32: 185–207.
- SMIL, VACLAV** (2003): *Energy at the Crossroads: Global Perspectives and Uncertainties*. Cambridge, London: The MIT Press.
- SMIL, VACLAV** (2008): *Energy in Nature and Society: General Energetics of Complex Systems*. Cambridge, London: The MIT Press.
- SÖDERBAUM, PETER** (1994): *Actors, ideology, markets. Neoclassical and institutional perspectives on environmental policy*. *Ecological Economy* 10: 47–60.
- SOVACOO, BENJAMIN K.** (2008): *The Dirty Energy Dilemma: What's Blocking Clean Power in the United States*. Westport: Praeger.
- SOVACOO, BENJAMIN K. IN MARILYN A. BROWN** (2007): *Introduction – The Compelling Tangle of Energy and American Society*. In *Energy and American Society – Thirteen Myths*, Benjamin K. Sovacool in Marilyn A. Brown (ur.), 1–22. Dordrecht: Springer.
- SOVACOO, BENJAMIN K. IN RICHARD F. HIRSH** (2007): *Energy Myth Six – The Barriers To New and Innovative Energy Technologies are Primarily Technical: The Case of Distributed Generation (DG)*. In *Energy and American Society – Thirteen Myths*, Benjamin K. Sovacool in Marilyn A. Brown (ur.), 145–170. Dordrecht: Springer.
- STIRLING, ANDY** (2008): *Diversity and Sustainable Energy Transitions: Multicriteria Diversity Analysis of Electricity Portfolios*. In *Analytical Methods for Energy Diversity & Security*, Morgan Bazilian in Fabien Roques (ur.), 3–30. Oxford, Amsterdam: Elsevier.
- WALKER, GORDON IN NOEL CASS** (2011): *Public roles and socio-technical configurations: Diversity in renewable energy deployment in the UK and its implications*. In *Renewable Energy and the Public: From NIMBY to Participation*, Patrick Devine-Wright (ur.), 43–56. London, Washington DC: Earthscan.
- WALKER, GORDON IN PATRICK DEVINE-WRIGHT** (2008): *Community renewable energy: What should it mean?* *Energy Policy* 36: 497–500.
- WARWICK, WILLIAM M.** (2002): *A Primer on Electric Utilities, Deregulation, and Restructuring of U.S. Electricity Markets*. Richland: Pacific Northwest National Laboratory.

Aleksandar ŠOBOT, MA  
Assoc. Prof. Andrej A. LUKŠIČ, PhD

## THE IMPACT OF EUROPEANISATION ON THE NATURE PROTECTION SYSTEM OF SLOVENIA: EXAMPLE OF THE ESTABLISHMENT OF MULTI- LEVEL GOVERNANCE SYSTEM OF PROTECTED AREAS NATURA 2000

**Abstract:** The Europeanisation of South Eastern Europe led to the pre-accession and accession process of joining the European Union of the Republic of Slovenia. Slovenia's accession to the formal process of accession to the European Union started in 1999. This process lasted until 2003. Then, in 2004, Slovenia joined the European Union. This paper examines the impact of Europeanization during this period on the nature protection system in the case of Slovenia while establishing multi-level governance system of protected areas Natura 2000. The analysis of the establishment of multi-level governance system is performed according the morphogenetic model in three cycles as case study. Case study is organized with the help of interviews and desk analysis of the relevant documents. In the first cycle were explained the projects of implementation of Natura 2000 in Slovenia and its changing impacts on national legislation in the area of nature protection. The second cycle explains the role of the main actors in the establishment of multi-level governance system of Natura 2000. The third cycle outlines the contributes

to the establishment of multi-level governance system of Natura 2000 in nature protection system of Slovenia and future challenges of the nature protection system of Slovenia. The main conclusions emphasize that the major changes due to implementation of European ecological network Natura 2000 into the national system of Slovenian nature protection, which led to transformation of governmental institutions and equal inclusion of non-governmental organizations into the system of decision making.

**Key Words:** The Europeanisation of South Eastern Europe, the Republic of Slovenia, the accession process, the nature protection system, protected areas Natura 2000

### INTRODUCTION

#### Nature protection in the European Union

Biodiversity loss is considered to be the biggest problem in the 21th century. Therefore, the nature protection has become a political issue at the global level. The European Union (EU) has the leading role in the nature protection on a global level because there are 28 countries involved in the common system of nature protection.

The system of nature protection at the EU level is based on the international obligations of sustainable development (Giljum et al., 2005; Ferranti et al., 2010; Winter et al., 2014; Winkel et al., 2015). The concept of sustainable development<sup>1</sup> (SD) of the Rio de Janeiro based on Brauntland Report (BR) occurred in order to protect nature on a global level, which is the

---

<sup>1</sup> Sustainable development implies social and economic progress which does not jeopardize natural systems (Lukšič, 2010)

main pillar of economic and social development (Šobot and Lukšič, 2016). The implementation of the objectives of nature protection is carried out through the democratic principles that are a prerequisite for sustainable development (Stringer and Paavola, 2013; Niedziałkowski et al., 2015).

The objectives of nature protection at EU level arising from the concept of sustainable development at the international level are the Birds Directive (BD) and the Habitat Directive (HD)<sup>2</sup> (Rosa and Da Silva, 2005; Wurzel, 2008; Ferranti et al., 2010; Louette et al., 2011; Winter et al., 2014; Winkel et al., 2015). Democratic principles for achieving these goals according to the concept of sustainable development (SD) are provided with access to information and the opportunity to participate in decision-making of non-governmental actors. These principles are an integral part of the Aarhus Convention<sup>3</sup> (AC). In this way, the AC has become an integral part of achieving the objectives of BD and HD at EU level according to the the concept of SD (Stringer and Paavola, 2013; Niedziałkowski et al., 2015).

---

<sup>2</sup> Council Directive (79/409/EEC) of 2 April 1979 on the conservation of wild birds; Council Directive (92/43/EEC) of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Source: UNECE, 1998

<sup>3</sup> The Aarhus Convention includes the Directives on public access to environmental information, public participation and the EC Regulation on access to justice in environmental matters (Aarhus Convention, 1998)

## Europeanisation of South Eastern Europe

Extending the EU has led to a process of the Europeanization<sup>4</sup> of South Eastern Europe (SEE), which led to altering the nature protection system in these countries (Cent et al., 2014) according to the the concept of SD. Europeanisation leads to the integration of EU nature protection policy into the national policy on nature protection (Gioti Papadaki, 2012; Kay, 2014). EU nature protection policy is based on the goals and principles of international commitments and in the process of Europeanization these commitments are implemented into national legislation as a political condition for EU accession (Baker, 2003; Denti, 2014). One of such political conditions is the implementation of the objectives of BD and HD in the national legislation (Fernández et al., 2010; Kapaciauskaite, 2011; Krenova Kindlmann, 2015). These two directives are the two basic pillars of Natura 2000<sup>5</sup> (N2000) (Rosa and Da Silva, 2005; Wurzel, 2008; Louette et al., 2011; Pietrzyk-Kaszyński et al., 2012; Winter et al., 2014; Winkel et al., 2015).

The implementation of N2000 represents the political commitment necessary for EU

---

<sup>4</sup> The notion of Europeanization can have several meanings by which the basic meanings of this notion are EU influence on national legislation (policy), system (polity) and politics

<sup>5</sup> Natura 2000 represents the European Ecological Network of Protected Areas; Natura 2000 is the basis of nature protection at EU level in line with the concept of sustainable development (Ferranti et al., 2010; Winkel et al., 2015)

accession (Baker, 2003; Kati et al., 2014). The implementation requires the establishment of multi-level governance system of N2000 (Cent et al., 2014; Niedziałkowski et al., 2015). The establishment of multi-level governance system of N2000 requires the implementation of the objectives of BD and HD in the national legislation. BD and HD indirectly require the implementation of AC (Ferranti et al., 2010; Stringer and Paavola; 2013 Cent et al., 2014; Winter et al., 2014) which is the basic pillar of multi-level governance system (MLG) on nature protection at the EU level, in line with the concept of SD (Niedziałkowski et al., 2015).

### **Establishment of Multi-level governance system of N2000**

The implementation of the objectives of BD, HD and AC in the national legislation leads to changing national legislation. These changes are based on the changing relationship in decision-making at the national level with the inclusion of new actors in the national system of nature protection (which causes changing the roles of the old actors) (Beunen and de Vries, 2011). Niedziałkowski et al. (2015) reported that the national legislation of nature protection is the starting point for work on the establishment of MLG system of N2000. National legislation defines the main actors and their role in nature protection (and conservation) in establishing MLG system of N2000. Lockwood

et al. (2010) suggest that the roles of the main actors in the establishment of MLG system are defined according to international principles implemented into national legislation. Lukšič (2002); Stringer and Paavola (2013) reported that the newly created role of major actors in nature protection are defined according to the principles of the AC, which are a prerequisite to achieve the objectives of nature protection (BD and HD) in accordance with the concept of SD.

MLG system of N2000 on the principles of AC leads to a sharing of responsibility between governmental and non-governmental actors in MLG nature protection at the national level (Niedziałkowski et al., 2015). Cent et al. (2014) state that the establishment of MLG of N2000 system leads to sharing power between higher levels of governance (governmental institutions) and lower levels of governance (non-governmental organizations) and the involvement of all actors in decision-making. Mertens (2013) states that in addition to governmental and non-governmental actors, the EU also got an important role.

### **The roles of the main actors in the establishment of MLG system of N2000**

The role of the EU in the process of establishing MLG of N2000 system is to fund and coordinate the implementation of the objectives and principles of nature protection in national legislative (Stubbs, 2005; Wurzel, 2008; EEA,

2010; Ferranti et al., 2010; Mertens, 2013; Kati et al., 2014); to ensure the transfer of knowledge from EU level (Jordan et al., 2000; Giljum et al., 2005; Brulle, 2008); to ensure transparency and equal involvement of governmental and non-governmental actors in decision-making (Kohler-Koch and Rittberger, 2006; Beunen and de Vries, 2011); to preserve international goals in the national legislation (Jordan, 1998).

Governmental actors have a legitimate responsibility for the implementation of international agreements (Lockwood et al. 2009). Cent et al. (2014) reported that governmental actors are responsible for the process of organizing and establishing the MLG system of N2000. The establishment of MLG of N2000 system includes a number of governmental institutions (actors) to communicate, interact and make joint decisions. According to the national legislation the main governmental actors are determined in the process of establishing MLG system of N2000. Their roles are mostly defined by the principles of AC (Lukšič, 1999, 2001<sup>6</sup>, 2002; Stringer and Paavola, 2013) in the collection of information and involvement of non-governmental actors in decision-making in line with the concept of SD (Wurzel, 2008).

---

<sup>6</sup> Lukšič (1999, 2001) described the challenges of democracy with the development of technology. In his book and article he cited the implementation of the Aarhus Convention as a fundamental (democratic) precondition of environmental protection (nature protection) in accordance with the concept of sustainable development

Non-governmental actors, such as non-governmental organizations (NGOs) in the field of nature protection, have been given the opportunity for equal participation in decision-making as well as governmental actors in the process of establishing MLG system of N2000 (Weber and Christophersen, 2002; Ferranti et al., 2010; Cent et al., 2013; Stringer and Paavola, 2013). Newig and Fritsch (2009) state that the MLG system of N2000 non-governmental actors have the same impact as governmental actors. Such influence is reflected in the professionalization of the NGO sector in which, in the course of establishing MLG system of N2000 experts and the public are included (Kapaciauskaite 2011). Involving the public and NGO experts in accordance with the principles of AC is necessary to establish MLG system of N2000 (Hunka and de Groot, 2011). Experts play an important role in gathering information and making better decisions in the decision-making process (Holling, 1993). In many situations, they have the role of a lawyer to the public (usually in the process of access to justice). NGO with experts involved has a crucial role in establishing MLG of N2000 system through monitoring the proper implementation of international agreements into national law and their proper implementation in the field (such as BD, HD and AC) (Christophersen and Weber, 2002; Cent et al., 2013).



## Contributes to the establishment of MLG system of N2000 nature protection system at the national level

Transposition of the objectives and principles of nature protection with the EU level in accordance with the concept of SD at the national level leads to the biggest changes in the system of nature protection of SEE countries (Cent et al., 2014; Niedziałkowski et al., 2012; 2015). Wurzel (2008) states that the implementation of BD, HD and AC into national legislation, contributes to the legitimacy of nature protection at the national level. Stringer and Paavola (2013) state that the establishment of N2000 contributes most to the development of AC in practice which Lukšič (2002) points out as the main prerequisite to achieve the objectives of nature protection at the national level in line with the concept of SD globally. The Aarhus Convention (AC) represents the involvement of non-governmental actors in the N2000, and in this way it leads to the development of participation in the MLG system of nature protection (such as Poland, Italy, Greece, Romania and Hungary; see Ferranti et al., 2010; Apostolopoulou et al., 2012; Stringer and Paavola, 2013; Cent et al., 2014; Niedziałkowski et al., 2015). Increased participation in the establishment of MLG of N2000 system has become the central component of the system of nature protection of Central and Eastern Europe (CEE) countries (Schusler et al., 2003; Ferranti et al., 2010; Cent et al., 2014; Kay,

2014; Niedziałkowski et al., 2015). Kluvánková-Oravská et al. (2009) suggest that participation and involvement of non-governmental actors in the nature protection contribute to the development of democracy in these areas.

## The aim of the research

Niedziałkowski et al. (2015) states that it is important to distinguish between past experiences of implementation of N2000 (establishing MLG system) that are based on rules and practices. The practices are quite different in all EU countries. Fernández et al. (2010) associate it with socio-political development of each country.

Fagan (2005, 2006a, 2006b, 2008, 2011); Fagan and Sircar (2010a, 2010b, 2012); Bojicic-Dzelilovic and Kostovicova (2013); Bache and Tomsic (2010); Bache et al. (2011); Šobot and Lukšič (2016) did research on the impact of Europeanization in the countries of the former Yugoslavia and noted that there are common practices of non-compliance with international obligations and emergent national legislation in the process of Europeanization. Kay (2014) states that the countries of the former Yugoslavia represent a unique opportunity to explore the impact of Europeanization on the system of nature protection when establishing MLG system N2000.

The main objective of the research is to determine the influence of Europeanization on the nature protection system in the case of Slovenia while establishing MLG system of

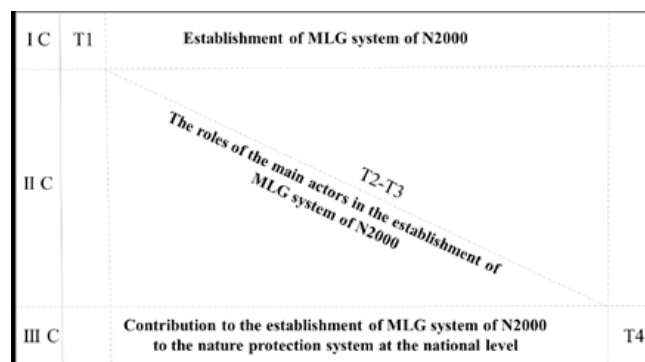
N2000. Similar studies have been performed in the counties of the former Yugoslavia, such as Croatia (see: Šobot and Lukšič, 2016). The research of environmental socio-political changes due to the impact of Europeanization in the national system of nature protection based on the objectives of BD, HD and principles of AC contribute to the understanding of MLG system of nature protection in this area which is a prerequisite of good governance (and management) within N2000 areas (Kati et al., 2014; Winter et al., 2014; Niedziałkowski et al., 2015) and to the development of the concept of sustainable development (Ferranti et al., 2010; Winkel et al., 2015).

## RESEARCH FRAMEWORK AND METHODOLOGY

### Research framework

The research framework is set according to the morphogenetic model of Margaret Archer<sup>7</sup>. Morphogenetic model includes 3 cycles, namely: structural conditionality, social interaction and structural reproduction (**Figure 1**).

<sup>7</sup> Margaret Archer's morphogenetic model is specifically described in the following reference books: McAnulla (2005); Lukšič, (2009, 2010). This model is ideal for researching the impact of international aims of SD or environmental policy (such as AGENDA 21) upon national systems for protection of nature or environmental policy, in the implementation of MLG for protection of nature or environmental politics



Source: Aleksandar Šobot, unpublished work

**Figure 1:** Morphogenetic model of Margaret Archer customized for the research study

### The first cycle: structural conditionality

The first cycle, *structural conditionality*, is shown in the text through the influence of Europeanization on the system of nature protection of Slovenia in the course of changing national legislation with the implementation of international commitments necessary for the implementation of the N2000 (SD). Europeanization in Slovenia was presented in the accession period since the official candidacy to join the EU in 1999 to its entry in 2004<sup>8</sup>. International obligations of this period led to changing the concept of the nature protection of Slovenia, particularly through the implementation process of the objectives of BD and HD, which represent two

<sup>8</sup> The official candidature is taken into account with the validity of the association agreement of Slovenia to the EU. This agreement came into force on the 2nd of February 1999. Source: RTV SLO, 2003

main pillars of N2000 areas which need to be defined<sup>9</sup> and adopted at the national level before entering the EU. BD and HD indirectly require AC (Ferranti et al., 2010; Stringer and Paavola, 2013; Cent et al., 2014; Winter et al., 2014), whose principles are implemented into national legislation when establishing MLG system of N2000 (Niedziałkowski et al., 2015). The AC introduces three new principles in nature protection of the SEE countries, namely: access to information, the opportunity to participate in decision-making and access to justice (Lukšič, 2002; Stringer and Paavola, 2013). The implementation of the objectives of these principles into national legislation<sup>10</sup> leads to a legislative definition of the main actors in nature protection at the national level and their new roles (Niedziałkowski et al., 2015). In the new Slovenian legislation<sup>11</sup> of nature protection, EU, the competent ministry of nature protection, protected areas managers (such as national parks) and non-governmental organizations (in the field of nature protection) become the main actors in nature protection.

---

<sup>9</sup> Define areas according to the Birds Directive and the Habitat Directive

<sup>10</sup> Implementation of the objectives is taken into account with the ratification of the Aarhus Convention in Slovenia. Ratification of the Aarhus Convention at the national level obliges national governments to organize public participatory processes through the involvement of society in environmental issues (such as establishment of MLG system of Natura 2000) (Stringer and Paavola, 2013)

<sup>11</sup> Current Slovenian legislation

The newly created roles of the main actors in the nature protection of Slovenia are based most on the principles of AC which is the basic change in the system of nature protection of SEE countries in the process of Europeanization. In this way, AC became the main form of communication of all actors during the establishment of MLG system of N2000. In such way, the influence of Europeanization on the nature protection system in these countries depends on the performance of the principle of AC (communication) by the main actors of nature protection in the process of establishing MLG system of N2000.

The first cycle of studies includes two research questions. The first research question is to *determine the process of establishing MLG of N2000 system in Slovenia that followed during the accession process*. This part describes the process of establishing MLG system of N2000 in the accession period to the EU. It will identify the main carriers of the establishment of MLG system of N2000, main activities, main objectives, the organization, the main participants, the main financiers and contribution to the process of establishing MLG of N2000 system in the changing national legislative. The second research question is linked to the first research question in the context of legislation framework. The second research question is to *determine the changes in the national legislation during the implementation*

of N2000 international agreements. Within this research question the implementation of the BD, HD and AC into national law is described with a focus on the newly created roles of major actors in nature protection of Slovenia<sup>12</sup>.

### The second cycle: social (and political) interaction

The second cycle, *social (and political) interaction*, is shown in the text describing the roles of the main actors who have had to establish MLG system of N2000. The second cycle includes a research question, namely: *Determining the roles of the main actors in the process of establishing MLG system of N2000*. It is explored the role of the EU at the national level to establish MLG system of N2000. At the national level, it is examined the role of the competent Ministry of nature protection and the oldest protected area in the country, the Triglav National Park (TNP). National Parks (NP) are for a long time managers of protected areas and their role with the Europeanization and adoption of N2000 has become crucial for the performance of international obligations (BD and HD) at the local level to the concept of SD (Ferranti et al., 2010). NP connect the supranational and national level of nature protection with the local level of nature protection and population of their area (Stringer and Paavola, 2013). Neumann (2005)

---

<sup>12</sup> The text relies on the current national legislation with any changes due to the process of establishing MLG system N2000

states that the NP communication at all levels of MLG system of nature protection is the key to the success of establishing MLG system of nature protection (such as the establishment of MLG system of N2000), and its further functioning. Geitzenauer et al. (2016) state that the N2000 is a system of national parks of developed countries. Because of this their role in the MLG system of N2000 has received a special focus in research. It investigates their communication and problems at all levels of MLG system of nature protection in the process of establishing MLG system of N2000. It also explores the role of non-governmental actors at the national level and of non-governmental organizations which, in the course of implementation of the N2000, include the public and experts in the field of nature protection. Experts lead to more skilled labor and professionalization of NGOs in the field of nature protection (Börzel and Buzogány, 2010; Fernández et al., 2010; Kapaciauskaite, 2011; Kay, 2014).

### The third cycle: structural reproduction

The third cycle, *structural reproduction*, includes the text which analyzes the main contributions of the entire process of establishing MLG system of N2000 to system of nature protection of Slovenia on the principles of AC and according to the objectives of BD and HD. This cycle includes two research questions. The first research question is *to determine*

*the contribution of the process of establishing MLG system of N2000 to system of nature protection of Slovenia.* This issue will discuss how the ongoing Europeanization (establishing MLG system of N2000) and the process of harmonization with EU national legislative, such as the implementation of the objectives of international agreements (BD, HD, AC) contributed to the development of the nature protection system of Slovenia. After that, there is another research question *identifying future challenges for the nature protection system of Slovenia.* Here are the most discussed problems in the execution of international nature protection obligations (AC) that are necessary for implementing nature protection goals (BD and HD) in line with the concept of SD.

## Methodology

The impact of Europeanization on the nature protection system of Slovenia is investigated as a case study on the example of the establishment of MLG system of N2000 in order to determine the socio-political changes in the nature protection system of Slovenia. The implementation of N2000 is usually explored through a case study (Geitzenauer et al., 2016). The case study was performed according to Yin's (2009) case study research design steps<sup>13</sup>.

---

<sup>13</sup> Yin's (2009) case study research design steps include: defining research questions, linking research questions, connecting with other issues necessary for the understanding of the responses

The data analysis of the results and the discussion<sup>14</sup> is based on a desk study and qualitative research. The desk study includes documents (reports of implementation projects of N2000, national legislation relevant for nature protection<sup>15</sup>, relevant governmental and non-governmental documents found on the official web sites) and accessible references on establishing MLG system of N2000<sup>16</sup> (relevant scientific reference papers and books in native and foreign languages).

The empirical research is based on 23 interviews. Interviews were taken from the participants on the entire territory of Slovenia, at all levels of MLG system of nature protection (local, national, supranational) and from the EU, governmental and non-governmental

---

from the research questions, connecting empirical data and theories in the interpretation of results. Linking empirical data and theories like the instructions by Yin (2009) and his guidance of inclusion in accordance with the research framework (morphogenetic model), research issues and major research aim

<sup>14</sup> The discussion has a transdisciplinary scope (or access) because it cooperates with 4 axioms according to Torkar and McGregor (2012). This transdisciplinary scope (or access) of the discussion is necessary because of the involvement of different stakeholders from different disciplines in the process of establishing MLG system of N2000. Various participants contribute to the creation of a vision to establish MLG system of N2000

<sup>15</sup> The Slovenian Constitution, the Law on Environmental Protection, Nature Protection Act, the National Programme of Protection of Environment, the National Programme for the Nature Protection, Law on the Triglav National Park, Management Plan of TNP, Management plan of N2000

<sup>16</sup> Keywords: Europeanization of South Eastern Europe, the accession process, Slovenia, the nature protection system, establishment of MLG system of N2000



representatives according to Robinson (2014). Snowball sampling<sup>17</sup> is the chosen method of involving participants (taking interviews) where each participant suggests a second person or institution that has participated in the establishment of MLG system of N2000. Further that institution proposes a relevant person (participants in establishing MLG system of N2000) for the interview. In addition, interviews were taken from the residents of all ethnicity in Slovenia<sup>18</sup> according to Robinson (2014). The interviews were taken in the native language. In addition, 1 interview was taken in a different language<sup>19</sup>.

All interviews were taken in the period from June 2015 to February 2016. Preparation of interviews and interviews were taken according to Torkar et al. (2011). An interview guide<sup>20</sup> was developed within the project *Multi-level Governance of Natural Resources in Slovenia, Croatia and Bosnia and Herzegovina*<sup>21</sup>, which is carried out in the framework of the Center for Political Theory, University of Ljubljana.

The interview guide contains 41 questions<sup>22</sup> that contribute to the understanding of the establishment of MLG system of N2000. The duration of the interview was 45 minutes to 175 minutes.

The transcription of the interviews were performed according to Torkar et al. (2011)<sup>23</sup>. The transcription of the interviews lasted from 200 to 800 minutes. All transcribed interviews were sent for the review and confirmation of participants. It was collected about 400 pages of text. On the basis of this the network of responses or matrix<sup>24</sup> was made (**Figure 2**).

---

<sup>17</sup> According to Robinson (2014) Snowball Sampling has 4 steps

<sup>18</sup> According to the Slovenian Constitution, there are three ethnicities: Slovenians, Italians and Hungarians

<sup>19</sup> 1st interview was taken on the english language (international expert)

<sup>20</sup> The interview guide can be obtained on a request via e-mail from the corresponding author

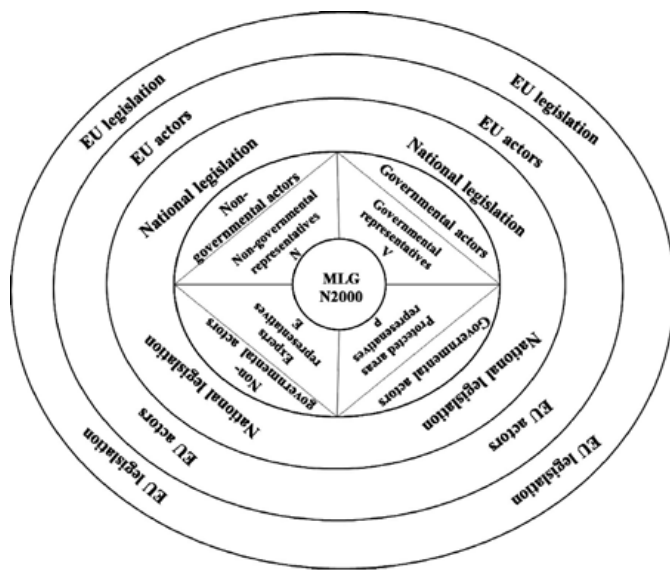
<sup>21</sup> The individual research project is a part of the transdisciplinary project „Challenges of Democracy for the 21st Century“

---

<sup>22</sup> Questions are semi-open; For instance, to obtain the answer to the first research question, questions such as: “When did the N2000 process start in your country?“, “What are the main phases in the process of establishing N2000 in your country?“, etc. were asked within the interview; to answer the second research question, questions such as: “Were there any changes in the system for nature protection in your country, due to EU ‘approaching’?“, etc. were asked within the interview; to answer the third research question, questions such as: “What was the role of EU in the process of establishing N2000 in your country?“, “What was the role of the Ministry in charge for Nature Protection?“, etc. were asked within the interview; to answer the fourth research question, questions such as: “What is the effect of establishing MLG of N2000 in your country?“, etc. were asked within the interview; to answer the fifth research question, questions such as: “Future challenges of N2000 in your country?“, etc. were asked within the interview

<sup>23</sup> Torkar et al. (2011) in their work presents several citations by other authors for the transcription of the interviews. It is very important to listen to the interview several times, and write carefully the answers to the research questions and research aim

<sup>24</sup> In preparing the matrix citations are used according to Reisigl and Wodak’s (2016) historical discourse analysis and previous studies of similar items, such as Lukšič (1999)



Source: Aleksandar Šobot, unpublished paper  
 Figure 2.: Matrix of research

The matrix of responses of participants is divided into four groups, namely: representatives of governmental organizations<sup>25</sup> (7 interviews), representatives of protected areas<sup>26</sup> (3 interviews), representatives of non-governmental organizations<sup>27</sup> (5 interviews), representatives of the experts<sup>28</sup>

<sup>25</sup> 7 Interviews were collected from the government representatives who come from the competent state Ministry for nature protection, the competent ministries of Agriculture, the competent Ministry of Physical Planning and the Institute of Nature Protection

<sup>26</sup> 3 interviews were taken from the representatives of protected areas: Triglav National park; Goričko Landscape Park; Logorska Dolina Landscape park

<sup>27</sup> 5 interviews were taken from the representatives of non-governmental organizations in the field of nature protection with the entire Slovenian territory, namely: NGO DOPPS (3 interviews: Maribor, Ljubljana and Koper), NGO Lutra and NGO Cypra

<sup>28</sup> 8 Interviews were collected from the representatives of the academic community, including: the University of Ljubljana (4 inter-

(8 interviews). All interviews were taken according to the instructions of Robinson (2014) concerning the confidentiality of data where the answers are coded according to the representatives of the groups and the order of interviews. In this way, the representatives of governmental organizations have received the code V and serial numbers from 1 to 7; representatives of protected areas have the code P and the numbers from 1 to 3; representatives of the experts are with the code E and numbers from 1 to 8; representatives of non-governmental organizations with the code N and numbers from 1 to 5. These groups also constitute representatives of the profession, the public and politics as well as major governmental and non-governmental actors in the process of establishing MLG system of N2000 in Slovenia. In addition, the process of establishing the MLG system of N2000 at a supranational level to involve EU actors that influence the national level to establish MLG system of N2000. EU actors and EU legislation, governmental and non-governmental actors and national legislation are starting point of establishing of MLG system of N2000 (Figure 2). Th at is why results and discussion<sup>29</sup> are led from the position of legislation and main actors (or participants).

views), the University of Maribor, the University of Primorska, the University of Nova Gorica and the Natural Museum of Slovenia

<sup>29</sup> The results and discussion were conducted according to the statements of participants of MLG and access to relevant reference book

## RESULTS AND DISCUSSION

### Process of establishment of MLG system of N2000

The Republic of Slovenia (RS) has an area of 20 273 km<sup>2</sup> with about 2 000 000 inhabitants. RS is a unitary and indivisible state in accordance with the Constitution<sup>30</sup> (Article 4). In addition to Slovenians, there are still two national minorities (Italians and Hungarians) who have their guaranteed representatives in the Parliament (Article 80/RS Constitution). The Parliament has a role of acceptance or rejection of the proposed laws by the Government (Article 86/RS Constitution). The Government of the Republic of Slovenia has the Prime Minister and 14 ministers from 14 ministries which propose laws for adoption. The Legislation of RS must implement international obligations of whose it is a signatory (under Article 8/RS Constitution). Many international obligations are implemented in the national legislation in the EU integration period. In 1999 Slovenia gave formal candidacy to join the EU and in 2004 it became a member of the EU. One of the conditions that it had to meet along the way is the implementation of N2000.

The implementation of N2000 requires the establishment of MLG system of N2000 (Cent et al., 2014; Niedziałkowski et al., 2015). In 1999 Slovenia began the process of establishing

MLG system of N2000 with the adoption of the Law on the Nature Protection<sup>31</sup> (LNP) in which are the integrated objectives of BD and HD (Article 4). In addition, Slovenia signed the Aarhus Convention<sup>32</sup> in 2002 and subsequently integrated the objectives of its directives in the Law on Environment Protection Act<sup>33</sup> (LEP) (Article 1). The directive on access to information is integrated in Article 106 (LEP) where the state is required every fourth year to inform the National Assembly and the public about the environmental situation in the country. According to Article 109 (LEP) Ministries and other public services shall provide access to information on request unless otherwise provided by the statute. The objectives of the Directive on the possibilities of participation are integrated in Article 6 (LEP) which guarantee the participation of all governmental and non-governmental actors in international affairs (such as is the matter of establishing N2000). According to Article 13, Article 26, Article 37, Article 43, Article 44, Article 58, Article 71 (LEP) the public has the opportunity to participate in plans for protection of the environment, the

---

<sup>31</sup> Source: Uradni list RS, 2014; Slovenian title: Zakon o varstvu narave (ZVN)

<sup>32</sup> Source: REC, 2002; The objectives of the directive AC previously have been integrated into national legislation and full implementation came with the ratification AC

<sup>33</sup> Source: Uradni List RS, 2006a; Slovenian title: Zakon o varstvu okolja (ZVO)

---

<sup>30</sup> Source: RS, 2016; Slovenian title: Ustava Republike Slovenije

management plans, environmental impact studies, and other important documents for the protection of the environment. The objectives of the regulation for the access to justice have been integrated in Article 14 (LEP), where the public has unrestricted access to justice without compensation or with small fees. With the implementation of the objectives of BD and HD and the principles of AC in Slovenia it was established legislative framework of MLG system of N2000.

### The main changes in the new system of nature protection in Slovenia

The EU has become an important actor in the protection of nature. According to Article 109 (LEP) the EU institutions cooperate with the competent ministries in exchanging information. In this way, the role of the EU in the transfer of information from other EU countries as defined in Article 129 (LEP) where the Government must submit all EU drafts of environmental protection for the approval and harmonization with other countries. In addition, the EU controls the implementation of international obligations, or takes care of international directives. In Article 33 (LNP) it is stated that the final proposal of N2000 the Government submits to the relevant EU institution in Slovenia for approval. After the approval by the EU it follows the adoption by the Government in the whole country.

In Slovenia, the N2000 was adopted in 2004. Governmental institutions have a legitimate responsibility for the implementation of international agreements, such as BD and HD (Cent et al., 2014). The Government is responsible to submit a final proposal of N2000 to EU institutions at the state level (Article 33/LNP). The RS government has, in the process of establishing MLG system of N2000, adopted a law on the protection of nature in which it is defined (Article 34/LNP) that the competent ministry shall keep records of N2000 areas. The competent Ministry of Nature Protection is the Ministry of Environment and Spatial Planning. In addition, the involvement of other sectors is particularly emphasized in the national programme of nature protection<sup>34</sup> (NPNP). NPNP emphasizes the importance of inter-sectoral cooperation, which should contribute systematically to the concept of SD. In LPN (Article 101e.) it is stated that the inclusion of other sectors go through LEP in accordance with the principles of AC. Also, this law is responsible for the protection of biodiversity (Article 2) and the implementation of the objectives of SD in all sectoral policies (Article 4). Article 35 of the same law it is defined that the national programme for the protection of the environment<sup>35</sup> (NPEP) should integrate

---

<sup>34</sup> Slovenian title: Nacionalni program varstva narave; Source: Uradni list, 2006b

<sup>35</sup> Slovenian title: Nacionalni program varstva okolja; Source: Uradni list, 2006c

the national objectives of nature protection at the sectoral level. The NPNP stated that the public institutions are the basis for performing nature protection in practice, and in accordance with international agreements. In this way, managers of protected areas from the previous period have become important actors in the performance of international obligations at the local level. Their role is defined in the national legislation.

Act on NPT (Article 42) provides working with the local population to achieve the objectives of nature protection, the participation in the development of state documents at the national level (Article 42), the transfer of experience from other parks and other states (Article 44), enabling the access to information (Article 42), ensuring cooperation with all stakeholders to protect nature on their territory (Article 42). The Nature Protection Act (Article 117) provides raising public awareness about nature protection in the territory of protected areas. Moreover, it is defined in Article 155 (LEP) that NGOs in Slovenia participate in vocational counseling body ministry. Many NGOs employ professionals and as such they can contribute to many professional counseling of ministries (Rootes, 2007). NPEP stresses the importance and role of NGOs in involving the public in decision-making and the enforcement of the principles of AC (Section 7 of Communication in environmental protection).

## **The roles of the main actors in the establishment of MLG system of N2000**

### **The role and contribution of International actors / EU in the process of establishing MLG system of N2000**

EU provides leadership in the global governance of nature protection (Brown, 2013). In recent years it has significantly increased its institutional capacity for nature protection through expansion to the countries of SEE. In these countries, it has become a state actor (Mertens, 2013) because in most cases it funded and coordinated in an advisory way the implementation of EU objectives and principles of nature protection in national legislation (Stubbs, 2005; Wurzel, 2008; EEA, 2010; Ferranti et al., 2010; Mertens, 2013; Kati et al., 2014). In Slovenia, the EU funded and coordinated in a advisory way all projects to establish N2000 (V1, V7, P1, N1, E1, E2). Through these projects, there has been the implementation of the objectives of BD and HD, as well as AC objectives that represent the basic change in the system of nature protection in Slovenia. Funding by the EU secured most the introduction of the legal order in the field of nature protection through the implementation of international commitments (V1,V7).

EU is the guardian of international objectives of nature protection at the national level (Jordan, 1998). In Slovenia, the EU has been



recognized as the guardian of the objectives of the Agreement, in order to remain unchanged under the influence of domestic legislation (V1, V2, V6, P1, N4, N5, E3). In this way, supranational rules with a transnational participant secured transparency and immutability of rules of nature protection at the national level. The immutability of AC rules led to altering public awareness and former practices (V1, V2, V4, V6, V7, P1, P2, N1, N3, N4, N5, E1, E3, E5). The new practice has demanded changes in the concept of nature protection, system access through planning and cross-sectoral cooperation which has not been the practice earlier (V1, N1, N4, E1, E2, E3, E4, E6). That is why the NGO sector gained for the first time equality in decision-making in the field of nature protection. EU ensures equality of actors (Newig and Fritsch, 2009). In Slovenia it is the biggest change in the relationship of governmental and non-governmental actors in the system of nature protection. This led to altering the practices, to increasing the number of participants in the protection of nature, to showing respect for all actors in decision making, as well as a greater respect for legislation. EU is the guardian of the rights (Jordan, 1998) and all disputable situations that have come between governmental and non-governmental actors in the process of establishing N2000 led to the freezing of funds for Slovenia<sup>36</sup> (E3). This is the mechanism by which EU does not participate

<sup>36</sup> Hydroelectric power plants in the valley of the Sava River

directly in the relations between the stakeholders (governmental and non-governmental actors) but protects supranational interest and compels the participants to work together to find a solution.

In many countries EU represents a platform of knowledge transfer between member states (Jordan et al., 2000; Giljum et al., 2005; Brulle, 2010). In Slovenia, the EU has become a national consultant for all future plans of nature protection which must comply with the ranking of EU legislative or other member states. In this way, a new practice in the transfer of information was introduced which has been recognized as important in all processes of nature protection.

### The role and contribution of Governmental actors / Relevant ministry of nature protection in the process of establishing MLG system of N2000

Weber and Christophersen (2002); Lockwood et al. (2009); Ferranti et al. (2010) state that the governmental institutions are responsible for communication at the international level and the implementation of international legislative into national legislation (such as BD, HD, AC). Bulkeley and Mol (2003); Neumann (2005); Beunen and de Vries (2011); Cent et al. (2014) state that the governmental institutions are responsible for organizing the process of establishing MLG system of N2000, and for collecting information and involvement of all actors in decision-making.

The competent Ministry of nature protection in Slovenia had a organizational formal role in the processes of establishment of N2000. This ministry has acted as BD and HD transposition into the national law (V1, V2, V3, V6, P1, P2, P3, N1, N2, N3, N4, E1, E2, E4, E5, E6). The Ministry has communicated directly with the representatives of the European Commission in Slovenia in terms of consultation and funding fulfillment of all international obligations (P2, N3, N5, E1). Nature protection sector in this Ministry has most worked on it (V2, V6, P1, N1). For the needs of the N2000 the board has been established within the Ministry which was coordinated by the Ministry Secretary (V1, V2, V3, V6, P1, E4, E5), who played the role in preparing the proposal of N2000 (V1, P1, N2, E2, E4).

The Board had political support, the minister himself was directly involved in the work<sup>37</sup> (E2). Initially, the board was composed of representatives of the intersectors of Ministry (V1, V2, V3, V6, P1, P2, E1, E2, E3, E4, E5) but as the process continued the board spread to other sectors. The competent ministry changed its internal structure to the needs of the work to establish the N2000. Krenova and Kindlmann (2015) state that there is a strengthening of capacities in the sectors of nature protection and Kay (2014) states that the new institutions are established according to the needs of the work

---

<sup>37</sup> Political support was based on the great commitment of the Slovenian citizens for the EU accession (around 70%)

for N2000 areas. In Slovenia there has been an increase in employment in the sector of nature protection, and new institutions were established to work on technical issues N2000 (such as the Institute for Nature Protection). Due to these changes the working board for the N2000 spread to other sectors, primarily with representatives of the Institute for Nature Protection<sup>38</sup> (V1, V2, E1, E4, E5). Within the committee there was a group for professional issues (data collection) (V1, V2, L1, E1, E2) and a group for communication (public involvement) (V1, V2, L1, E4). Both groups and the board consisted of governmental representatives and, where appropriate, they included non-governmental representatives<sup>39</sup>.

From most other sectors the forest sector has been most involved since forests make up a large part of N2000 areas in Slovenia (V3, P1). However, the sector of agriculture was very little involved for different objectives<sup>40</sup> (V1, E2). Objectives are not essentially different, because the principle of the survival and sustainable development is in common. Within this sector there was not enough professional communication during the formation of the first agri-environmental programme<sup>41</sup> which today

---

<sup>38</sup> The Institute for Nature Protection represents the governmental institution established for the need to establish N2000

<sup>39</sup> At first one private company was involved that was supposed to help in communication

<sup>40</sup> V1 and E2 stated the term different objectives

<sup>41</sup> Agri-environmental programme was created in 2001 (Ministarstvo za kmetijstvo gozdarstvo in prehrano, 2001)

in the management of N2000 causes problems. Rosa and Da Silva (2005); Kay (2014) see such communication as the basis for resolving conflicts in the later stages of the management of N2000. In Slovenia there was created the second agri-environmental programme<sup>42</sup> but conflicts at the local level still incur as a reflection of poor communication with the agricultural sector in the process of establishing N2000. In the future, it is necessary to create a document how to manage conflicts at the local level which can contribute to the harmonization of these two sectors on the basis of concrete examples, or which would be more dedicated to debates between private property and the public good. Such a way of solving problems Lakičević and Tatović (2012); Vikolainen et al. (2013); Blenckner et al. (2015); Bennett (2016) call adaptive management. Louette et al. (2011) suggest that adaptive management should be an integral part of the management of N2000 at the national level. In addition, it is necessary to introduce education about nature protection in accordance with the concept of SD in all formal educational programmes of agricultural departments of secondary and higher education. Education about the N2000 is necessary to integrate all departments concerning the protection of nature. Education on nature protection (which

---

<sup>42</sup> Agri-environmental programme for the period 2015-2020 (Ministarstvo za kmetijstvo gozdarstvo in prehrano, 2015); This program has compensation payments in focus and represents a continuation of the first program

will contribute to changing the way of thinking and behavior) is the basis of SD (Gifford and Nilsson, 2014; Torkar, 2014) and of the conflict resolution (Hiedanpaa 2002; Lukšič, 2010; Stringer and Paavola, 2013; Nastran, 2015).

### The role and contribution of the Triglav National Park in the process of establishing MLG system of N2000

TNP is the only national park in Slovenia<sup>43</sup>. He is the oldest and largest protected area in the country. Its area is 83.981 ha. The first time it got the status of the park in 1981. The territory of the park includes 8 municipalities that have their representatives in the management of NP<sup>44</sup>. Besides that, in participating in the management of NP, the representatives of NGO sector as well as residents of the area are included<sup>45</sup>.

TNP did not have a defined role in establishing MLG of N2000 system by the competent Ministry (V1, V2, V3, V4, V5, V6, V7, P1, P2, P3, N1, N4, N5, E1, E2, E3, E5, E6). TNP has been more as a participant under national legislation (E2), than an actor in establishing MLG system of N2000.

---

<sup>43</sup> In the Slovene legislation there are also landscape parks and regional parks that belong to the broader protected areas

<sup>44</sup> Bovec, Bohinj, Kranjska Gora, Bled, Tolmin, Kobarid, Gorje, Jesenice

<sup>45</sup> According to the management plan of TNP representatives of three NGOs are included and which are registered in the field of nature protection and are located on the territory of TNP; 3 land owners of the territory of TNP also participate (Triglavski narodni park, 2016)

According to national legislation and the concept of SD (from BR) NP should work on collecting information and involving local people in decision-making. National parks represent a territory with private land owners from the previous period (Neumann, 2005) and in the establishment of MLG system of N2000 there is an increased participation in these areas (Niedziałkowski et al., 2012). Public involvement in the work of the TNP during the establishment of MLG system of N2000 almost did not exist, although there has been an increase in participation at the national level. The problem is that the relations between the public and the TNP are very bad and it is very much related to politics or governance structure of the NP and the governance structure of municipalities (E2). *P1 stated ... the population differs NP from NP administration ... administration sets politics ... what is the administration so is the relationship of the population ....* Such a problem, or politicization of nature protection is often transferred to private owners of land where they often have excessive requirements (Nastran, 2015). *V1 stated: ... the people in the park have too high demands for compensation ...* The opinions of these areas are very important because people often see N2000 system as a system of nature protection in national parks (Neumann, 2005; Romano and Zullo, 2015; Geitzenauer et al., 2016). According to the concept of SD (from BR) and according to Rosa and Da Silva (2005); Jones

et al. (2012) reviews are the basic information for the management of nature protection. Gathering opinions on protected areas (N2000 areas) in NP are not collected in the process of establishing MLG of N2000 system and it is one of the major flaws of the organization of the whole process<sup>46</sup>. It is necessary in the future to collect opinions of inhabitants of protected areas of nature protection and of the N2000 with a goal to long-term conflict resolution, which will also contribute to increasing public involvement in the operation of the park. Work on the collection of opinions can lead to altering the behavior of private land owners to sustainable land use in NP (Rosa and Da Silva, 2005; Niedziałkowski et al., 2012; Kay, 2014) and this has been proven in the course of establishing MLG of N2000 system in Slovenia<sup>47</sup>. Also, the TNP did not work to raise public awareness of the importance of protecting nature and the N2000 as prescribed by law and what Ferranti et al. (2010) considered very important. Their relationship with the media is based on a lot of conflict situations between

---

<sup>46</sup> However, in this study the opinions of participants were collected in the process of establishing MLG system of N2000 about the importance of nature protection. Most participants recognized the protection of nature as part of the current national legislation and policies (V2, V3, P2, E4, E5, E6). It says that in many cases N2000 is understood as a regime mainly due to the politicization of nature and poor education, and poor long-term cooperation between the public and protected areas

<sup>47</sup> Changing consciousness brought the entire process of N2000 to the refusal of some major infrastructure projects that were planned in protected areas. Also, many farmers with intensive type of production decided to move to sustainable production type

park municipalities and the public institution of NP. This is why most media space accepted such information system while systematic working on raising public awareness of the N2000 at the national level was not there.

Since the TNP includes 8 municipalities, many participants mentioned the problem of unequal representation of local people in the management structure of the park and the uneven distribution of financial resources to all municipalities of the park (V3, V4, P1, P2, N4, E2, E3, E4, E5). It is necessary to “institutionally upgrade”<sup>48</sup> TNP or to establish new models of governance and management of protected areas<sup>49</sup>, which would lead to the “democratization”<sup>50</sup> of protection of nature in which all participants would have equal representation and power in decision-making. Nastran (2015) states it is the biggest problem in TNP. In such a way the equal distribution of financial resources to all municipalities TNP would be guaranteed.

Involving researchers in the TNP due to the establishment of MLG system of N2000 was

---

<sup>48</sup> Dietz et al. (2003) suggest institutional upgrading as the main challenge to achieving the goals of sustainable development

<sup>49</sup> Carlsson and Berkes (2005); Ferranti et al. (2010); Beunen and de Vries (2011) propose co-management; Niedziałkowski et al. (2012); Gruby and Basurto (2013); Blenckner et al. (2015) propose ecosystem management; Slocombe (1998), Imperial (1999); Borgström et al. (2015); Nilsson and Bohman (2015) propose ecosystem based management; Armitage (2005), Booth and Halseth (2011), Bennett (2016) and concept SD (from world conservation strategy (1980)) propose community based management

<sup>50</sup> Lukšič (2010) writes about the need for “democratization” based on the equal distribution of power in decision-making

of great importance because the TNP does not have a developed capacity to carry out such operations. It is necessary to strengthen the TNP professionally as needed to meet the objectives of nature protection in accordance with the concept of SD. This needs to be done on a legal basis where the determined percentage of experts necessary for monitoring the state of the TNP would be guaranteed by the law. Also, it is necessary to establish a systematic research and monitoring with the help of the academic community, first of all higher education institutions through their regular activities, which is proposed by the concept of SD. In this way, protected areas would be more professionally strengthened, which would contribute to more expert debates with the local population and less politicization of nature protection.

At the national level, the TNP had no significant roles in the policy establishment of MLG system of N2000 although Arnberger (2012) cited it as their main role. The board for the establishment of MLG of N2000 system had no specific plans of involving the TNP in the whole process even though they represent long-term managers of protected areas, according to which N2000 was established as Geitzenauer et al. (2016) stated.

At the international level, the TNP did not work on the transfer of experience from the N2000 areas with long-term practice, such



as Italy and Austria with which it entered into the transboundary area. The concept of SD strongly supports the establishment of transboundary areas to coordinate all regional data and transfer the necessary experience for the better protection of species and habitats. It was not intentionally planned at the national level and even the management of the park did not, on its own initiative, implement through transboundary plan of activities where there was a possibility for such cooperation. Also, at the international level the TNP does not monitor the impact of climate change on habitats and species in its territory which is proposed according to the concept of SD. It is necessary in the future to work more on monitoring and adaptation of climate change in the TNP and in compliance with international practice.

### The role and contribution of Non-governmental actors / NGOs in the field of nature protection in the process of establishing MLG system of N2000

Non-governmental organizations in the field of nature protection with the supranational level, such as the Bird Life International, are one of the advocates of N2000 and one of the initiators of BD (Oberthür et al., 2003). Such organizations have their members throughout the EU and they transfer knowledge and experience from countries with N2000 adopted in countries that are in the process of establishing N2000

(Kapaciauskaite, 2011). One of their members is the NGO DOPPS<sup>51</sup> from Slovenia which had a major role in establishing the MLG system of N2000 (P3). This organization has contributed a lot in the transfer of experience and knowledge from other EU countries that have already adopted N2000 (V2, P2, N2, N3, N4, N5, E4, E5).

NGOs have a major role in monitoring the proper implementation of international agreements into national law and their proper implementation in the field (Breitmeier and Rittberger, 1998), which Christophersen and Weber (2002); Börzel and Buzogány (2010); Fernández et al. (2010); Cent et al. (2013), Kay (2014) considered their main role in the process of establishing MLG system of N2000. Also in Slovenia in the implementation of the BD and HD in the national legislation DOPPS has been many times called upon the comments and opinions (V1, V2, V3, V7, P2, P3, N3, N4, N5, E3, E4, E5). They worked on the preservation of objectives of the directive of all interests which could lead to problems in nature protection at the national level (V2, V6, P1, P2, N1, N2, N3, N4, N5, E1, E2, E3, E4).

In many countries there has been a professionalization of the NGO in which in the course of establishing MLG system of N2000 are included experts and the public (Börzel and Buzogány, 2010; Fernández et al., 2010; Kapaciauskaite,

---

<sup>51</sup> NGO for Bird Watching and Research in Slovenia. Slovenian title: Društvo za opazovanje in proučavanje ptic Slovenije (DOPPS)

2011; Kay, 2014). Involving the public and NGO experts in accordance with the principles of AC is necessary to establish MLG system of N2000 (Hunka and de Groot, 2011). Experts play an important role in gathering information and making better decisions in the decision-making process (Holling 1993). In Slovenia NGO sector, in progress of establishing of MLG system of N2000, hired many experts who had the greatest significance in collecting data and determining the N2000 areas (N1, N2, N3, E1, E2). The state had no established professional institutions (such as the Institute for the Nature Protection) at the beginning of the process so the inclusion of experts in the NGO sector has contributed to professional work on determining the N2000 areas. In this way, the NGO DOPPS was the first proponent of N2000 areas in Slovenia (P3). Later, with the entry into the accession process, there was an adoption of the law on nature protection where the establishment of professional institutions for professional work in N2000 was stated (Article 115). Also, at a later stage of the accession process it was the Government (in accordance with international rules) which formally proposed N2000, but their proposal was not much different from the first proposal of DOPPS (P3).

Krenova and Kindlmann (2015) reported that a large number of NGOs had involved in the processes of environmental impact assessment (EIA) in the process of establishing N2000.

This leads to the public participation in NGO (Hartley and Wood, 2005; Renn, 2006; Reed, 2008; Beunen and de Vries, 2011). In Slovenia the NGO's influence is the most recognizable at the local level where they began to participate in a number of EIA<sup>52</sup> as a party to the proceedings, as well as spatial planning which had not been a practice earlier (P2, N1, N2, E3). In this way, there was a great public involvement in the protection of nature, which recognized the possibility for action on the problem through the NGO. During this period, NGO stopped many harmful projects in the N2000 areas proposed (which ended on domestic or EU courts) and rejected many planned ones (V2, V7, P1, P2, N3, N4, N5, E1, E3, E4).

NGOs in the process of N2000 raises public awareness (Bulkeley and Mol, 2003; Ferranti et al., 2010). In Slovenia NGO has worked hard to raise public awareness of the importance of protected areas (such as N2000) (V2, N3, E4). The public accepted the emergence of protected areas from the previous period to a greater extent because with the professional education they saw their development opportunities (especially local population of protected areas). In this way, the NGO sector has taken on the role of protected areas (such as the TNP) to work with the local population and raising

---

<sup>52</sup> Studies of environmental impact are the first step in the development of the public participation in nature protection. Objectives of the Birds and Habitats directives proposed impact studies on protected areas

public awareness of the importance of nature (and N2000). On the other hand the public has gained confidence in NGO sector as a good ally in negotiations with governmental actors (V7, P1, P2, P3, N3, N4, N5, E1, E3, E4).

Non-governmental actors contribute most to the development of participation in N2000 (Christophersen and Weber, 2002; Ferranti et al., 2010; Cent et al., 2013; Stringer and Paavola, 2013). Also in Slovenia NGO had a major role in contributing to the development of the principles of AC (especially in participation) in the protection of nature, which had previously been at a very low level. Such communication led to increased discussion in the protection of nature, pointing out the problems and possible solutions. Therefore, it is necessary in the future to create a separate document of communication in the field of nature protection<sup>53</sup> of Slovenia.

After the adoption of the N2000 NGOs receive a variety of other roles in the N2000, such as the management and monitoring protected areas (N2000 areas) (Ferranti et al., 2010). In Slovenia after the adoption of N2000 NGO DOPPS was entitled to manage one protected area in Slovenia (Škocjanski Zatok). In such a way NGOs play a role in the governance and management of N2000 areas. Also, the development of NGO sector in the course of establishing MLG of N2000 system contributed to the professionalisation and greater

work on the monitoring of habitats and species. Many large NGOs win tenders for carrying out of monitoring at national level and then they left the business to small NGOs to deal (V1, P3, N3, E3). This is one of the problems which must be addressed in the future. There should be organized policy of equal development of NGO sector (from the field of nature protection) in the whole country. Such a policy should give more space to local NGOs in the field of nature protection. This would further contribute to the development of AC principles in practice and increase public involvement in decision-making from the peripheral territories.

### **Contribution of Europeanization to the nature protection system in the case of Slovenia establishing MLG system of N2000**

Transposition of the objectives and principles of nature protection from the EU level at the national level leads to the biggest changes in the system of nature protection of SEE countries (Cent et al., 2014). In RS the transposition of the BD, HD and the principles AC contributed to major changes in the nature protection system. The Environmental law serves as central component of the nature protection (Holing, 1993). The implementation of international obligations has contributed to the introduction of the nature protection system at the national level (V1, V3, N3, N5, E2, E3). Wurzel (2008) stated that the implementation of BD, HD and

---

<sup>53</sup> The current communication is legislatively established into NPEP

AC into national legislation contributes to the legitimacy of nature protection at the national level. Stringer and Paavola (2013) state that the establishment of N2000 most contribute to the development of the AC principles at the local level towards achieving the objectives of nature protection at the national level in accordance with the concept of SD at the global level. The AC has become a central component of the system nature protection in RS. Kluvánková-Oravská et al. (2009) suggest that the processes of establishing N2000 contribute to gathering information to the BD and HD; the involvement of governmental and non-governmental actors in nature protection in line with the objectives of BD and HD; and they lead to the development of the judiciary in the nature protection in line with BD and HD.

### The contribution of the first pillar of the AC according to the BD and HD

The processes of establishing N2000 contribute to the organized collection of information in line with the BD and HD (Kati et al., 2014). In Slovenia the process of establishing MLG of N2000 system has led to the increased information on the number and status of species (according to the BD and HD) in the whole country as well as their value in relation to other countries (V2, E1, E2, E3). Kay (2014); Romano and Zullo (2015) state that the increase of information (according to the BD

and HD) lead to a greater protection of species and habitats at a national level through the establishment of new protected areas (potential N2000 areas). New protected areas have also been established in Slovenia where one third of the country is protected by the BD and HD.

Niedziałkowski et al. (2015) reported that gathering of information contributes to the development of cross-sectoral cooperation. Gathering information about the N2000 habitats and species in Slovenia has led to increased cooperation and communication in nature protection in all sectors (V3, V4, V5 N2, E2, E3). This led to the changes of sector policies during the implementation of the objectives of BD and HD (the objectives of SD). Kluvánková-Oravská et al. (2009); Kay (2014) report that the implementation of BD and HD in all sectoral policies leads to the decentralization of the system of nature protection at the national level that causes institutional transformation. In Slovenia, in the course of establishing N2000 institutional transformation occurred. The competent ministry changed its own internal structure (V1, V2, V3), and the Institute for Nature Protection was founded as a professional institution working on collecting data for N2000 (V1, V2, V3, N2, N3, P1, E1, E2, E4). The Institute has an obligation to publish all of relevant information related to the N2000 areas. In this way for the first time Slovenia enabled the public access to information in the

field of nature protection in one place which, according to EEA (2010) represents the basis for halting the loss of biodiversity.

### The contribution of the second pillar of the AC according to the BD and HD

The process of establishing N2000 requires public participation (Stringer and Paavola, 2013; Cent et al., 2014; Kati et al., 2014; Niedziałkowski et al., 2015). The entire process of establishing MLG of N2000 system in Slovenia demanded public participation and it contributed to the changing practices of the public from passive observers to active participants. Public participation in decision-making contributes to the development of participation in nature protection (Cent et al., 2014). Governmental and non-governmental actors (the public, the profession and politics) for the first time together created the politics and policy of nature protection in the whole country, which led to the development of participation in the MLG system of nature protection in Slovenia (ie, changing the earlier practice of it). The establishment N2000 is the first major period of participation in nature protection. Weber and Christophersen (2002); Cent et al. (2013) suggest that an increase in participation usually goes through NGOs. In Slovenia NGOs contributed to the increase in participation most in the field of nature protection. NGOs included all the interested public in decision-making when establishing MLG system of N2000 (N1,

N2, N3, E1, E3, E4). In this way for the first time in the nature protection system of Slovenia the public participation is understood as the ability of nature protection (N2, E3, E5). Torkar and McGregor (2012) state that the understanding of the nature protection is the basis for the changes in thinking and behavior. The change of thinking and behavior, according to Gifford and Nilsson (2014); Torkar (2014) is the basis for sustainable development.

### The contribution of the third pillar of the AC according to the BD and HD

Cent et al. (2013) state that the public involvement is going through NGO while Grodzinska-Jurczak and Cent (2011) suggest that the public is involved in the NGO in order to act on the problem. Hartley and Wood (2005) report that the public involvement in NGO is the largest in the process of EIA whose directives are implemented in the national legislation in parallel with BD and HD. In Slovenia the public has recognized the possibility for action on the problem in nature protection through NGOs that received similar impact as governmental organizations and partly included them in the process of EIA. Therefore, the NGO launched many lawsuits against harmful projects in the proposed N2000 areas (that ended up at national or EU courts) (N1, N2, N3, N4, N5). This led to the development of the judiciary in the nature protection sector.



## Future challenges of the nature protection system in Slovenia

BD and HD are in the phase of construction in Slovenia (second management plan of was created<sup>54</sup>) which represents a new way of governance (and managing) nature protection in this country which requires time to achieve impact in practice. Its impact is largely based on education and knowledge of the profession, which requires a constant upgrade of the professional governmental institutions (N2000 managers) in order to avoid a continuing trend of intellectual poverty in the institutional framework<sup>55</sup>. Such changes should be based on the transdisciplinarity concept of nature protection. Transdisciplinary concept is the inclusion of more logic to the solving of a problem<sup>56</sup>. In the process of establishing MLG system, N2000 is considered in Slovenia with more logic without a common goal which makes big problems in managing N2000 areas. It takes more work to understand the objectives of N2000 in accordance with the concept of SD. According to Torkar (2014) the understanding is the basis of the implementation of the objectives of SD. N2000 through the nature

---

<sup>54</sup> N2000 management plan 2015-2020 (Vlada Republike Slovenije, 2015)

<sup>55</sup> Ostrom (1990, 2005) stated the institutional problem of intellectual poverty

<sup>56</sup> Torkar and McGregor (2012) cited in the transdisciplinary concept the term of stakeholder, which should contribute to better management of nature protection and sustainable development

protection is a concept of SD. The concept of SD is the same for all and it is common. Future financing of N2000 in Slovenia should focus on the application of the principle of AC according to the objectives of the BD and HD in accordance with the concept of SD. The performance of the objectives of the BD and HD according to the principles of AC in practice is still very problematic for Slovenia.

## The challenge of the first pillar of the AC according to the BD and HD

At the local level it is necessary to work more on collecting the opinions of the population on nature protection and of N2000 in protected areas (such as the TNP) and on raising public awareness that will lead to more professional discussions and elimination of potential conflicts and problems, such as private property<sup>57</sup> in N2000 areas. This has not been done so far in nature protection in Slovenia and N2000. Such jobs are provided according to the concept of SD (from BR) and Ferranti et al. (2010); Niedziałkowski et al. (2012); Stringer and Paavola (2013) consider it very important. Data of opinions is necessary to integrate into the communication in the field of nature protection which is necessary to develop in the future as an independent document at the

---

<sup>57</sup> In the first stage of solving these problems a document how to manage conflicts should be created (as part second N2000 management plan)

state level. Also, data collection can be arranged through the ongoing program of e-participation for all interested public<sup>58</sup> of N2000 areas. In this way, all the inhabitants of protected areas could publicly participate in the gathering of information for the proper management of the area and contribute to communication in nature protection.

At the national level there is a problem of incomplete information<sup>59</sup> by competent institutions (ministries) as Booth and Halseth (2011) consider it as the biggest challenge in nature protection. The problems are mainly in the lack of transparency and lack of connection with all local, national and regional data. This creates challenges in the future which have to be based on the greater public involvement in gathering information, that it is necessary to »institutionally upgrade« public institutions. It is necessary to include the whole society to gather information<sup>60</sup> in order to achieve full nature protection. In the first line there should be included the academic community (higher education institutions) to collect information and regular monitoring of habitats and species,

---

<sup>58</sup> In many developed countries evidence-based monitoring programmes are highly developed and they contribute to the community-based management which proposed by the world conservation strategy (IUCN, 1980) which is a base for BR and the concept of SD

<sup>59</sup> N1 stated: ... and still if you want something in detail you have to look elsewhere or go to the local community by yourself ...

<sup>60</sup> Rosa and Da Silva (2005) suggest that in the monitoring of birds in France 200 000 volunteers take part

which suggests the concept of SD (from BR). Since many universities have programmes for nature protection this can be included as part of their regular activities<sup>61</sup>.

At the international level, the greatest challenges are monitoring the impact of Climate Changes (CC) on species and habitats in protected areas (Dimitrakopoulos et al., 2010; Blenckner et al., 2015). The impact of CC on protected areas in Slovenia is of very little extent or it is not investigated at all. It is essential for the future to approach this problem in a more organized way with the adaptation of making policy and management of such changes, in line with international practice.

### The challenge of the second pillar of the AC according to the BD and HD

One of the big problems is the unequal representation of NGOs from the entire territory of Slovenia in nature protection politics and policy which Newig and Fritsch (2009); Cent et al. (2013) consider as very important. It is necessary to work on the organized development of NGO sector (in the field of nature protection) on the entire territory of Slovenia in order to enable non-governmental actors from peripheral areas to be more involved in decision-making process.

---

<sup>61</sup> It is especially important that the education of N2000 should be integrated into the regular agricultural education which has not been the case at all higher education institutions in Slovenia

Another problem is the inconsistency of all sectors in the implementation of the objectives and principles of nature protection what Zito (2005); Lakićević and Tatović (2012); Niedziałkowski et al. (2012); Stringer and Paavola (2013) consider an essential challenge in nature protection. It is necessary to harmonize more different sectors at the national level through training that will lead to better discussions and approaching of conflict parties (especially on the examples of private ownership of land and protected areas). This will lead to the identification of new (sustainable) values toward the same goals<sup>62</sup>.

Government should work in the future to create a communication strategy primarily for N2000 areas and for the population of these territories in accordance with the concept of SD. The role of such a document would be a greater harmonization of local and national objectives with international needs<sup>63</sup>. The focus should be on developing the participation of local people in the management of protected areas that is characterized as being of very little extent in the process of establishing N2000.

---

<sup>62</sup> Agriculture, as well as other sectors has a role in the development of society while protecting nature and it is a common value to other sectors leading to a common goal. With the inclusion of values, all parties in nature protection become stakeholders for sustainable development

<sup>63</sup> For example, the public hearing in protected areas where they explained professionally the information on nature protection (eco information) contributed to a better acceptance of nature protection

New governance models of N2000 areas should be organized with a greater involvement of the public in their work as Dietz et al. (2003) considered an essential challenge in nature protection and SD. New models of governance protected areas in Slovenia should be organized through the »institutional upgrade« that will contribute to »greater democratization« of public institutions.

### The challenge of the third pillar of the AC according to the BD and HD

Hartley and Wood (2005) considered that the proper access to justice is a basic challenge in nature protection. The judiciary has still no developed practice in Slovenia for nature protection issues and it is necessary to work on it in the future. The public is still hard to decide for litigation because it requires a lot of time and knowledge. It is necessary to invest more in educating the public about the possibilities of judicial proceedings in the nature protection sector at the national level so the public could be more involved in the nature protection through litigation, and thereby contributed to a greater nature protection.

## CONCLUSION

The processes of Europeanization in Slovenia led to the implementation of the objectives of the BD, HD and the principles of AC in the

national legislation which are necessary for the establishment of MLG system of N2000. The implementation of international obligations into national law and the process of establishing MLG of N2000 system led to the inclusion of new actors in the protection of nature, such as the EU and NGOs; the transformation of governmental institutions; strengthening of non-governmental organizations; and changing the relationships of governmental and non-governmental actors in the decision-making process within the national system of nature protection.

The BD and HD have caused the transformation of governmental institutions and the strengthening of non-governmental organizations to the needs of gathering information. There was an increase in the number of employees, strengthening the capacity of governmental and non-governmental organizations assisted with EU funding. In addition, new institutions were established for the management of N2000 areas and new NGOs in the field of nature protection. New relationships were also established at the national level in decisions implemented according to the principles of AC. Non-governmental actors became equal in decision-making as well as governmental actors at the national level. Such legal equality has contributed to the development of the public participation in nature protection through non-governmental organizations. This led to altering public awareness in the first major participation in nature protection in Slovenia.

After the establishment of MLG system of N2000 participation and equality in the decision-making process, governmental and non-governmental actors have become an integral part of the national system of nature protection. For further development of the nature protection system RS in accordance with the objectives of SD it is necessary to work on developing the principles of AC towards achieving the objectives of BD and HD.

## LITERATURE

- APOSTOLOPOULOU, EVANGELIA, EVANGELIA G. DRAKOU, AND KALLIOPE PEDIADITI** (2012): *Participation in the Management of Greek Natura 2000 Sites: Evidence from a Cross-Level Analysis*. Journal of Environmental Management 113. Elsevier Ltd: 308–18. doi:10.1016/j.jenvman.2012.09.006.
- ARMITAGE, DEREK** (2005): *Adaptive Capacity and Community-Based Natural Resource Management*. Environmental Management 35 (6): 703–15. doi:10.1007/s00267-004-0076-z.
- ARNBERGER, ARNE, RENATE EDER, BRIGITTE ALLEX, PETRA STERL, AND ROBERT C. BURNS** (2012): *Relationships between National-Park Affinity and Attitudes towards Protected Area Management of Visitors to the Gesaeuse National Park, Austria*. Forest Policy and Economics 19. Elsevier B.V.: 48–55. doi:10.1016/j.forpol.2011.06.013.
- BACHE, IAN, GEORGE ANDREOU, GORICA ATANASOVA, AND DANIJEL TOMSIC** (2011): *Europeanization and Multi-Level Governance in South-East Europe: The Domestic Impact of EU Cohesion Policy and Pre-Accession Aid*. Journal of European Public Policy 18 (February 2015): 122–41. doi:10.1080/13501763.2011.520884.
- BACHE, IAN, AND DANIJEL TOMSIC** (2010): *Europeanization and Multi level Governance in Croatia*. Southeast European and Black Sea Studies 10 (1): 97–110. doi:10.1080/14683851003606887.

- BAKER, SUSAN** (2003): *The Dynamics of European Union Biodiversity Policy: Interactive, Functional and Institutional Logics*. *Environmental Politics* 12 (3): 23–41. doi:10.1080/09644010412331308264.
- BENNETT, NATHAN** (2016): *Using Perceptions as Evidence to Improve Conservation and Environmental Management*. *Conservation Biology* 00 (0): 1–11. doi:10.1017/CBO9781107415324.004.
- BEUNEN, RAOUL, AND JASPER R. DE VRIES** (2011): *The Governance of Natura 2000 Sites: The Importance of Initial Choices in the Organisation of Planning Processes*. *Journal of Environmental Planning and Management* 54 (8): 1041–59. doi:10.1080/09640568.2010.549034.
- BLECKNER, THORSTEN, HENRIK ÖSTERBLUM, PER LARSSON, AGNETA ANDERSSON, AND RAGNAR ELMGREN** (2015): *Baltic Sea Ecosystem-Based Management under Climate Change: Synthesis and Future Challenges*. *Ambio* 44 (3): 507–15. doi:10.1007/s13280-015-0661-9.
- BOJICIC-DZELILOVIC, VESNA, AND DENISA KOSTOVICOVA** (2013): *Europeanisation and Conflict Networks: Private Sector Development in Post-Conflict Bosnia–Herzegovina*. *East European Politics* 29 (1): 19–35. doi:10.1080/21599165.2012.760452.
- BOOTH, ANNIE, AND GREG HALSETH** (2011): *Why the Public Thinks Natural Resources Public Participation Processes Fail: A Case Study of British Columbia Communities*. *Land Use Policy* 28. Elsevier Ltd: 898–906. doi:10.1016/j.landusepol.2011.03.005.
- BORGSTRÖM, SARA, ÖRJAN BODIN, ANNICA SANDSTRÖM, AND BEATRICE CRONA** (2015): *Developing an Analytical Framework for Assessing Progress toward Ecosystem-Based Management*. *Ambio* 44 (3): 357–69. doi:10.1007/s13280-015-0655-7.
- BÖRZEL, TANJA, AND ARON BUZOGÁNY** (2010): *Environmental Organisations and the Europeanisation of Public Policy in Central and Eastern Europe: The Case of Biodiversity Governance*. *Environmental Politics* 19 (October 2014): 708–35. doi:10.1080/09644016.2010.508302.
- BREITMEIER, H., RITTBERGER, V.** (1998): *Environmental NGOs in an Emerging Global Civil Society*. *Tübinger Arbeitspapiere zur Int. Polit. und Friedensforsch* 32, 1-29.
- BROWN, M. LEANN** (2013): *European Union Environmental Governance in Transition — Effective? Legitimate? Ecologically Rational?* *Journal of International Organization Studies* 4 (1): 109–26. [http://journal-iostudies.org/sites/journal-iostudies.org/files/JIOSfinal\\_8\\_2.pdf](http://journal-iostudies.org/sites/journal-iostudies.org/files/JIOSfinal_8_2.pdf).
- BULKELEY, HARRIET, AND P. J. ARTHUR MOL** (2003): *Participation and Environmental Governance: Consensus, Ambivalence and Debate* *Participation and Environmental Governance*: *Environmental Values* 12 (September): 143–54. doi:10.3197/096327103129341261.
- CARLSSON, LARS, AND FIKRET BERKES** (2005): *Co-Management: Concepts and Methodological Implications*. *Journal of Environmental Management* 75 (1): 65–76. doi:10.1016/j.jenvman.2004.11.008.
- CENT, JOANNA, MAŁGORZATA GRODZIŃSKA-JURCZAK, AND AGATA PIETRZYK-KASZYŃSKA** (2014): *Emerging Multilevel Environmental Governance - A Case of Public Participation in Poland*. *Journal for Nature Conservation* 22 (2): 93–102. doi:10.1016/j.jnc.2013.09.005.
- CENT, JOANNA, CORDULA MERTENS, AND KRZYSZTOF NIEDZIAŁKOWSKI** (2013): *Roles and Impacts of Non-Governmental Organizations in Natura 2000 Implementation in Hungary and Poland*. *Environmental Conservation* 40 (02): 119–28. doi:10.1017/S0376892912000380.
- DENTI, DAVIDE** (2014): *The Europeanisation of Candidate Countries: The Case for a Shift to the Concept of EU Member-State Building*. *Contemporary Southeastern Europe* 1 (1): 9–32.
- DIETZ, THOMAS, ELINOR OSTROM, AND PAUL STERN** (2003): *Struggle to Govern the Commons*. *Science* 302: 1907–12. doi:10.1126/science.1091015.
- DIMITRAKOPOULOS, PANAYIOTIS G., NIKOLETA JONES, THEODOROS IOSIFIDES, IOANNA FLOROKAPI, OURANIA LASDA, FOIVOS PALIOURAS, AND KONSTANTINOS I. EVANGELINOS** (2010): *Local Attitudes on Protected Areas: Evidence from Three Natura 2000 Wetland Sites in Greece*. *Journal of Environmental Management* 91 (9): 1847–54. doi:10.1016/j.jenvman.2010.04.010.
- EEA** (2010): *Assessing biodiversity in Europe — the 2010 report*, *European Environment Agency*. EEA, Copenhagen. doi:10.2800/42824
- EEC** (1972): *Council Directive (79/409/EEC) of 2 April 1979 on the Conservation of Wild Birds*. European Commission. [http://ec.europa.eu/environment/nature/legislation/birdsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm).
- (1992): *Council Directive (92/43/EEC) of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora*. European Commission. [http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index\\_en.htm](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm).



- FAGAN, ADAM** (2005): *Civil Society in Bosnia Ten Years after Dayton*. *International Peacekeeping* 12 (3): 406–19. doi:10.1080/13533310500074515.
- (2006a): *Neither ‘north’ nor ‘south’: The Environment and Civil Society in Post-Conflict Bosnia-Herzegovina*. *Environmental Politics* 15 (5): 787–802. doi:10.1080/09644010600937215.
- (2006b): *Transnational Aid for Civil Society Development in Post-Socialist Europe: Democratic Consolidation or a New Imperialism?* *Journal of Communist Studies and Transition Politics* 22 (1): 115–34. doi:10.1080/13523270500508437.
- (2008): *Global-Local Linkage in the Western Balkans: The Politics of Environmental Capacity Building in Bosnia-Herzegovina*. *Political Studies* 56: 629–52. doi:10.1111/j.1467-9248.2007.00711.x.
- (2011): *EU Conditionality and Governance in Bosnia & Herzegovina: Environmental Regulation of the Trans-European Road Network*. *Europe-Asia Studies* 63 (10): 1889–1909. doi:10.1080/09668136.2011.618701.
- FAGAN, ADAM, AND INDRANEEL SIRCAR** (2010a): *Compliance without Governance: The Role of NGOs in Environmental Impact Assessment Processes in Bosnia-Herzegovina*. *Environmental Politics* 19 (4): 599–616. doi:10.1080/09644016.2010.489714.
- (2010b): *Environmental Politics in the Western Balkans: River Basin Management and Non-Governmental Organisation (NGO) Activity in Herzegovina*. *Environmental Politics* 19 (5): 808–30. doi:10.1080/09644016.2010.508313.
- (2012): *Promoting Democracy in the Western Balkans after the Global Economic Crisis*. London. <http://www.lse.ac.uk/europeanInstitute/research/LSEE/PDFs/Publications/Adam-Fagan-Paper-For-Publication.pdf>.
- FERNÁNDEZ, ANA MAR, NURIA FONT, AND CHARALAMPOS KOUTALAKIS** (2010): *Environmental Governance in Southern Europe: The Domestic Filters of Europeanisation*. *Environmental Politics* 19 (4): 557–77. doi:10.1080/09644016.2010.489711.
- FERRANTI, FRANCESCA, RAOUL BEUNEN, AND MARIA SPERANZA** (2010): *Natura 2000 Network: A Comparison of the Italian and Dutch Implementation Experiences*. *Journal of Environmental Policy & Planning* 12 (3): 293–314. doi:10.1080/1523908X.2010.505417.
- GEITZENAUER, MARIA, KARL HOGL, AND GERHARD WEISS** (2016): *Land Use Policy The Implementation of Natura 2000 in Austria — A European Policy in a Federal System*. *Land Use Policy* 52. Elsevier Ltd: 120–35. doi:10.1016/j.landusepol.2015.11.026.
- GIFFORD, ROBERT, AND ANDREAS NILSSON** (2014): *Personal and Social Factors That Influence pro-Environmental Concern and Behaviour: A Review*. *International Journal of Psychology*, 1–17. doi:10.1002/ijop.12034.
- GILJUM, STEFAN, THOMAS HAK, FRIEDRICH HINTERBERGER, AND JAN KOVANDA** (2005): *Environmental Governance in the European Union: Strategies and Instruments for Absolute Decoupling*. *International Journal of Sustainable Development* 8: 31. doi:10.1504/IJSD.2005.007373.
- GIOTI PAPANAKI, OLGA** (2012): *European Environmental Policy and the Strategy ‘Europe 2020’*. *Regional Science Inquiry Journal* IV (1): 151–58.
- GRODZINSKA-JURCZAK, MALGORZATA, AND JOANNA CENT** (2011): *Expansion of Nature Conservation Areas: Problems with Natura 2000 Implementation in Poland?* *Environmental Management* 47 (1): 11–27. doi:10.1007/s00267-010-9583-2.
- GRUBY, REBECCA L., AND XAVIER BASURTO** (2013): *Multi-Level Governance for Large Marine Commons: Politics and Polycentricity in Palau’s Protected Area Network*. *Environmental Science and Policy* 33. Elsevier Ltd: 260–72. doi:10.1016/j.envsci.2013.08.001.
- HARTLEY, NICOLA, AND CHRISTOPHER WOOD** (2005): *Public Participation in Environmental Impact Assessment - Implementing the Aarhus Convention*. *Environmental Impact Assessment Review* 25: 319–40. doi:10.1016/j.eiar.2004.12.002.
- HOLLING, C. S.** (1993): *Gyroscope: Negotiation and Conflict*. In *Compass and Gyroscope: Integrating Science and Politics for the Environment*, edited by Kai N. Lee, 87–114. Washington: Island Press.
- HUNKA, A, AND W T DE GROOT** (2011): *Participative Environmental Management and Social Capital in Poland*. *Social Geography* 6 (1): 39–45. doi:10.5194/sg-6-39-2011.
- IMPERIAL, MT.** (1999): *Institutional Analysis and Ecosystem-Based Management: The Institutional Analysis and Development Framework*. *Environmental Management* 24 (4): 449–65. doi:10.1007/s002679900246.

- IUCN (1980): *World Conservation Strategy - Living Resource Conservation for Sustainable Development*. IUCN, Geneva. doi:10.2305/IUCN.CH.1980.9
- JONES, NIKOLETA, THEODOROS IOSIFIDES, KONSTANTINOS I. EVANGELINOS, IOANNA FLOROKAPI, AND PANAYIOTIS G. DIMITRAKOPOULOS (2012): *Investigating Knowledge and Perceptions of Citizens of the National Park of Eastern Macedonia and Thrace, Greece*. International Journal of Sustainable Development & World Ecology 19 (1): 25–33. doi:10.1080/13504509.2011.584579.
- JORDAN, ANDREW (1998): *The Politics of a Multi-Level Environmental Governance System: European Union Environmental Policy at 25. 98-01*. Cserge Working Paper. London.
- JORDAN, ANDREW, RÜDIGER WURZEL, AND ANTHONY ZITO (2000): *Innovating with 'New' Environmental Policy Instruments: Convergence or Divergence in the European Union*. In Annual Meetings of the American Political Science Association, 1–21. Washington: American Political Science Association. [https://www.researchgate.net/publication/228600819\\_Innovating\\_with\\_New\\_Environmental\\_Policy\\_Instruments\\_Convergence\\_or\\_Divergence\\_in\\_the\\_European\\_Union](https://www.researchgate.net/publication/228600819_Innovating_with_New_Environmental_Policy_Instruments_Convergence_or_Divergence_in_the_European_Union).
- KAPACIAUSKAITE, IEVA (2011): *Environmental Governance in the Baltic Sea Region and the Role of Non-Governmental Actors*. Procedia - Social and Behavioral Sciences 14: 90–100. doi:10.1016/j.sbspro.2011.03.027.
- KATI, VASSILIKI, TASOS HOVARDAS, MARTIN DIETERICH, PIERRE L. IBISCH, BARBARA MIHOK, AND NURIA SELVA (2014): *The Challenge of Implementing the European Network of Protected Areas Natura 2000*. Conservation Biology 29 (1): 260–70. doi:10.1111/cobi.12366.
- KAY, KELLY (2014): *Europeanization through Biodiversity Conservation: Croatia's Bid for EU Accession and the Natura 2000 Designation Process*. Geoforum 54. Elsevier Ltd: 80–90. doi:10.1016/j.geoforum.2014.04.003.
- KLUVÁNKOVÁ-ORAVSKÁ, TATIANA, VERONIKA CHOBOTOVÁ, ILONA BANASZAK, LENKA SLAVIKOVA, AND SONJA TRIFUNOVOVA (2009): *From Government to Governance for Biodiversity: The Perspective of Central and Eastern European Transition Countries*. Environmental Policy and Governance 19 (3): 186–96. doi:10.1002/eet.508.
- KOHLER-KOCH, BEATE, AND BERTHOLD RITTBERGER (2006): *Review Article: The 'Governance Turn' in EU Studies* \*. JCMS 44: 27–49.
- KRENOVA, ZDENKA, AND PAVEL KINDLMANN (2015): *Natura 2000 - Solution for Eastern Europe or Just a Good Start? The Sumava National Park as a Test Case*. Biological Conservation 186: 268–75. doi:10.1016/j.biocon.2015.03.028.
- LAKIČEVIĆ, MILENA, AND NEVENA TATOVIĆ (2012): *Primena ekosistemskog pristupa u integralnom upravljanju prirodnim resursima*. Letopis Naučnih Radova 36 (1): 36–43. doi:502.171:62-503.55.
- LOCKWOOD, MICHAEL, JULIE DAVIDSON, ALLAN CURTIS, ELAINE STRATFORD, AND ROD GRIFFITH (2009): *Multi-Level Environmental Governance: Lessons from Australian Natural Resource Management*. Australian Geographer 40 (2): 169–86. doi:10.1080/00049180902964926.
- (2010): *Governance Principles for Natural Resource Management*. Society & Natural Resources 23: 986–1001. doi:10.1080/08941920802178214.
- LOUETTE, GERALD, DRIES ADRIAENS, PETER ADRIAENS, ANNY ANSELIN, KOEN DEVOS, KURT SANNEN, WOUTER VAN LANDUYT, DESIRE PAELINCKX, AND MAURICE HOFFMANN (2011): *Bridging the Gap between the Natura 2000 Regional Conservation Status and Local Conservation Objectives*. Journal for Nature Conservation 19. Elsevier GmbH.: 224–35. doi:10.1016/j.jnc.2011.02.001.
- LUKŠIČ, ANDREJ (1999): *Rizična Tehnologija: Izziv Demokraciji*. Ljubljana: Študentska organizacija Univerze v Ljubljani.
- (2001): *Rizične Tehnologije Kot Izziv Za Premislek o Odločevalskih Formah*. Teorija in Praksa 38 (3): 412–22. doi:20630109.
- (2002): *Politološki Premislek Ob Aarhuski Konvenciji*. Teorija in Praksa 39 (3): 321–30. doi:21209437.
- (2009): *Konec Demokracije?\**. Teorija in Praksa 46 (5): 7–28. doi:29003869.
- (2010): *Trajnosti Razvoj, Znanstveni Diskurzi in Nova Politika*. In Politološke Refleksije, edited by Andrej A. Lukšič, 423–35. Ljubljana: Centar za kritično politologijo, Univerza v Ljubljani. doi:32(082.034.2).

- MCANULLA, STUART** (2005): *Struktura i Djelovanje*. In Teorije i Metode Političke Znanosti, edited by David Marsh and Gerry Stoker, 279–86. Zagreb: Fakultet političkih znanosti, Sveučilište u Zagrebu. doi:32(075).
- MERTENS, CORDULA** (2013): *Playing at Multiple Levels in Biodiversity Governance: The Case of Hungarian ENGOs in Natura 2000*. Society and Economy 35 (2): 187–208. doi:http://dx.doi.org/10.1556/SocEc.2013.0001.
- NASTRAN, MOJCA** (2015): *Why Does Nobody Ask Us? Impacts on Local Perception of a Protected Area in Designation, Slovenia*. Land Use Policy 46. Elsevier Ltd: 38–49. doi:10.1016/j.landusepol.2015.02.001.
- NEUMANN, R. RODERICK** (2005): *Making Political Ecology*. In Making Political Ecology, edited by R. Roderick Neumann, 53–118. New York: Oxford University Press.
- NEWIG, JENS, AND OLIVER FRITSCH** (2009): *Environmental Governance: Participatory, Multi-Level - And Effective?* Environmental Policy and Governance 19 (3): 197–214. doi:10.1002/eet.509.
- NIEDZIAŁKOWSKI, KRZYSZTOF, JOUNI PAAVOLA, AND BOGUMILA JEDRZEJEWSKA** (2012): *Participation and Protected Areas Governance: The Impact of Changing Influence of Local Authorities on the Conservation of the Białowieża Primeval Forest, Poland*. Ecology and Society. Vol. 17. doi:10.5751/ES-04461-170102.
- NIEDZIAŁKOWSKI, KRZYSZTOF, AGATA PIETRZYK-KASZYŃSKA, MONIKA PIETRUCZUK, MAŁGORZATA GRODZIŃSKA-JURCZAK, KRZYSZTOF NIEDZIAŁKOWSKI, AND MONIKA PIETRUCZUK** (2015): *Assessing Participatory and Multi-Level Characteristics of Biodiversity and Landscape Protection Legislation : The Case of Poland*. Journal of Environmental Planning and Management, 1–21. doi:10.1080/09640568.2015.1100982.
- NILSSON, ANNIKA K., AND BRITA BOHMAN** (2015): *Legal Prerequisites for Ecosystem-Based Management in the Baltic Sea Area: The Example of Eutrophication*. Ambio 44 (3). Springer Netherlands: 370–80. doi:10.1007/s13280-015-0656-6.
- OBERTHÜR, S., BUCK, M., MÜLLER, S., PFAHL, S., TARASOFSKY, R.G., WERKSMAN, J.** (2003): *Participation of Non-Governmental Organisations in International Environmental Governance - Legal Basis and Practical Experience*. Ecological Briefs. EcoLogic, Berlin
- OSTROM, ELINOR** (1990): *Governing the Commons: The Evolution of Institutions for Collective Action*. Edited by James Alt and Douglass North. Ebooks.cambridge (online). USA: CAMBRIDGE University Press. doi:10.1017/CBO9780511807763.
- (2005): *Understanding Institutional Diversity*. New Jersey: Princeton University Press. doi:10.1007/s11227-007-9157-x.
- PIETRZYK-KASZYŃSKA, AGATA, JOANNA CENT, MAŁGORZATA GRODZIŃSKA-JURCZAK, AND MAGDALENA SZYMAŃSKA** (2012): *Factors Influencing Perception of Protected Areas-The Case of Natura 2000 in Polish Carpathian Communities*. Journal for Nature Conservation 20 (5): 284–92. doi:10.1016/j.jnc.2012.05.005.
- REC** (2002): *Aarhuška Konvencija v Sloveniji*. Strokovna priporočila za implementacijo Konvencije o dostopu do informacij, udeležbi javnosti pri odločanju in dostopu do pravnega varstva v okoljskih zadevah. doi:119081216.
- REED, MARK S.** (2008): *Stakeholder Participation for Environmental Management: A Literature Review*. Biological Conservation 4: 2417–31. doi:10.1016/j.biocon.2008.07.014.
- REISIGL, MARTIN, AND RUTH WODAK** (2016): *The Discourse-Historical Approach (DHA)*. In Methods of Critical Discourse Studies, edited by Ruth Wodak and Michael Meyer, 3rd ed., 24–58. London: Sage Publications Ltd.
- RENN, ORTWIN** (2006): *Participatory Processes for Designing Environmental Policies*. Land Use Policy 23: 34–43. doi:10.1016/j.landusepol.2004.08.005.
- ROBINSON, OLIVER C.** (2014): *Qualitative Research in Psychology Sampling in Interview-Based Qualitative Research : A Theoretical and Practical Guide*. Qualitative Research in Psychology 11: 25–41. doi:10.1080/14780887.2013.801543.
- ROMANO, BERNARDINO, AND FRANCESCO ZULLO** (2015): *Protected Areas, Natura 2000 Sites and Landscape: Divergent Policies on Converging Values*. In Nature Policies and Landscape Policies: Towards an Alliance, edited by Roberto Gambino and Attilia Peano, 18th ed., 127–35. Switzerland: Springer International Publishing. doi:10.1007/978-3-319-05410-0.
- ROOTES, C.** (2007): *Environmental Movements : From the Local to the Global*. Environmental Politics 8 (1): 1–12. doi:10.1080/09644019908414435.

- ROSA, HUMBERTO D., AND JORGE MARQUES DA SILVA** (2005): *From Environmental Ethics to Nature Conservation Policy: Natura 2000 and the Burden of Proof*. Journal of Agricultural and Environmental Ethics 18 (2): 107–30. doi:10.1007/s10806-005-0634-2.
- SCHUSLER, TANIA, DANIEL DECKER, AND MAX PFEFFER** (2003): *Social Learning for Collaborative Natural Resource Management*. Society Natural Resources 16 (4): 309–26. doi:10.1080/08941920390178874.
- SLOCOMBE, D SCOTT** (1998): *Defining Goals and Criteria for Ecosystem-Based Management*. Environmental Management 22 (4): 483–93.
- STRINGER, LINDSAY C., AND JOUNI PAAVOLA** (2013): *Participation in Environmental Conservation and Protected Area Management in Romania: A Review of Three Case Studies*. Environmental Conservation 40 (2): 138–46. doi:10.1017/S0376892913000039.
- STUBBS, PAUL** (2005): *Stretching Concepts Too Far? Multi-Level Governance, Policy Transfer and the Politics of Scale*. Southeast European Politics VI (2): 66–87.
- ŠOBOT, ALEKSANDAR, LUKŠIČ, ANDREJ** (2016): *The Impact of Europeanisation on the Nature Protection System of Croatia: Example of the Establishment of Multi-Level Governance System of Protected Areas NATURA 2000*. Socijalna ekologija: časopis za ekološku misao i sociološkijska istraživanja okoline, 25(3). doi:10.17234/SocEkol.25.3.2.
- TORKAR, GREGOR** (2014): *Learning Experiences That Produce Environmentally Active and Informed Minds*. NJAS - Wageningen Journal of Life Sciences 69. Royal Netherlands Society for Agriculture Sciences: 49–55. doi:10.1016/j.njas.2014.03.002.
- TORKAR, GREGOR, AND SUE L T MCGREGOR** (2012): *Reframing the Conception of Nature Conservation Management by Transdisciplinary Methodology: From Stakeholders to Stakesharers*. Journal for Nature Conservation 20 (2). Elsevier GmbH.: 65–71. doi:10.1016/j.jnc.2011.10.002.
- TORKAR, GREGOR, BARBARA ZIMMERMANN, AND TOMAS WILLEBRAND** (2011): *Qualitative Interviews in Human Dimensions Studies About Nature Conservation Kvalitativno Intervjuvanje Na Področju Raziskovanja Družboslovnih Vidikov Naravovarstva*. VARSTVO NARAVE 25: 39–52. doi:2047227.
- UNECE** (1998): *CONVENTION ON ACCESS TO INFORMATION, PUBLIC PARTICIPATION IN DECISION-MAKING AND ACCESS TO JUSTICE IN ENVIRONMENTAL MATTERS*. Denmark: The United Nations Economic Commission for Europe. doi:10.1017/CBO9780511494345.010.
- URADNI LIST RS** (2014): *ZAKON O OHRANJENJU NARAVE* [WWW Document]. Prav. red Republike Slov. URL <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO1600> (accessed 10.10.15)
- URADNI LIST RS** (2006a): *ZAKON O VARSTVU OKOLJA*. Uradni list RS, št. 39/2006. Republika Slovenija
- URADNI LIST RS** (2006b): *NACIONALNI PROGRAM VARSTVA NARAVE* [WWW Document]. Resolucija o nacionalnom programu Varstva Okolja. URL [https://www.uradni-list.si/files/2006/RS\\_-2006-002-00003-OB~P001-0000.PDF](https://www.uradni-list.si/files/2006/RS_-2006-002-00003-OB~P001-0000.PDF) (accessed 09.09.15)
- URADNI LIST RS** (2006c): *NACIONALNI PROGRAM VARSTVA OKOLJA* [WWW Document]. Resolucija o nacionalnom programu Varstva Okolja. URL [https://www.uradni-list.si/files/2006/RS\\_-2006-002-00003-OB~P001-0000.PDF](https://www.uradni-list.si/files/2006/RS_-2006-002-00003-OB~P001-0000.PDF) (accessed 09.09.15)
- VIKOLAINEN, VERA, H BRESSERS, AND K LULOFS** (2013): *The Role of Natura 2000 and Project Design in Implementing Flood Defence Projects in the Scheldt Estuary*. Journal of Environmental Planning and Management 56 (9): 1359–79. doi:10.1080/09640568.2012.724014.
- WEBER, NORBERT, AND TIM CHRISTOPHERSEN** (2002): *The Influence of Non-Governmental Organisations on the Creation of Natura 2000 during the European Policy Process*. Forest Policy and Economics 4: 1–12. doi:10.1016/S1389-9341(01)00070-3.
- WINKEL, GEORG, MARIEKE BLONDET, LARS BORRASS, THERESA FREI, MARIA GEITZENAUER, AXEL GRUPPE, ALISTAIR JUMP, ET AL** (2015): *The Implementation of Natura 2000 in Forests: A Trans- and Interdisciplinary Assessment of Challenges and Choices*. Environmental Science & Policy 52. Elsevier Ltd: 23–32. doi:10.1016/j.envsci.2015.04.018.
- WINTER, SUSANNE, LARS BORRASS, MARIA GEITZENAUER, MARIEKE BLONDET, RUTH BREIBECK, GERHARD WEISS, AND GEORG WINKEL** (2014): *The Impact of Natura 2000 on Forest Management: A Socio-Ecological Analysis in the Continental Region of the European Union*. Biodiversity and Conservation 23 (14): 3451–82. doi:10.1007/s10531-014-0822-3.

- WURZEL, RUEDIGER K W.** (2008): *European Union Environmental Policy and Natura 2000 From Adoption to Revision*. In Legitimacy in European Nature Conservation Policy: Case Studies in Multilevel Governance, edited by Keulartz J. and Leistra G., Springer, 259–82. Hull: University of Hull, UK. <Go to ISI>://WOS:000267582800020.
- YIN, ROBERT K** (2009): *Case Study Research: Design and Methods*. Fourth Edi. Vol. 5. London: Sage. doi:10.1097/FCH.0b013e31822dda9e.
- ZITO, ANTHONY R** (2005): *The European Union as an Environmental Leader in a Global Environment*. *Globalizations* 2 (3): 363–75. doi:10.1080/14747730500377156.

## WEB PAGES:

- MINISTARSTVO ZA KMETIJSTVO GOZDARSTVO IN PREHRANO** (2001): *SLOVENSKI KMETIJSKO OKOLJSKI PROGRAM*. [https://www.uradni-list.si/files/RS\\_-2001-034-02024-0B~P002-0000.PDF](https://www.uradni-list.si/files/RS_-2001-034-02024-0B~P002-0000.PDF). (30.09.2016.)
- (2015): *Kmetijsko-Okoljska-Podnebna Plačila 2015-2020*. <http://www.program-podezelja.si/sl/knjiznica/10-kmetijsko-okoljska-podnebna-placila-2015-2020/file>. (30.09.2016.)
- RS** (2016): *Ustava Republike Slovenije*. Republika Slovenija. <http://www.us-rs.si/media/ustava.republike.slovenije.pdf>. (30.09.2016)
- RTV SLO** (2003): *Slovenija in Evropska Unija*. <https://www.rtvlo.si/evropska-unija/slovenija-in-evropska-unija/8206>. (30.09.2016.)
- TRIGLAVSKI NARODNI PARK** (2016): *Načrt Upravljanja Triglavskega Narodnega Parka 2016 – 2025*. [http://www.tnp.si/images/uploads/NUTNP\\_3-05-2016.pdf](http://www.tnp.si/images/uploads/NUTNP_3-05-2016.pdf). (30.09.2016.)
- URADNI LIST RS** (2006a): *NACIONALNI PROGRAM VARSTVA NARAVE*. <http://www.npvo.si/>. (30.09.2016.)
- VLADA REPUBLIKE SLOVENIJE** (2015): *PROGRAM UPRAVLJANJA OBMOČIJ NATURA 2000 (2015-2020)*. [http://www.natura2000.si/fileadmin/user\\_upload/LIFE\\_Upravljanje/PUN\\_\\_ProgramNatura.pdf](http://www.natura2000.si/fileadmin/user_upload/LIFE_Upravljanje/PUN__ProgramNatura.pdf). (30.09.2016.)



## THE FIRST PUBLICATION OF ARTICLES

**LUKŠIČ, ANDREJ, BAHOR, MAJA.** Zelena politična teorija in državljanstvo. Teorija in praksa, ISSN 0040-3598, okt. 2011, letn. 48, jubilejna št., str. 1166-1183, 1385. [COBISS.SI-ID 30732381]

**LUKŠIČ, ANDREJ, BAHOR, MAJA.** Green political thought and democracy. V: GALIČ, Branka (ur.), ŽAŽAR, Krešimir (ur.). Razvoj i okoliš - perspektive održivosti : zbornik radova. Zagreb: Filozofski fakultet Sveučilišta u Zagrebu: FF-press, 2013, str. 161-170. ISBN 978-953-175-448-4 [COBISS.SI-ID 32434525]

**LUKŠIČ, ANDREJ.** Ecology, low-carbon society and politics. Teorija in praksa, ISSN 0040-3598, sep.-okt. 2014, letn. 51, št. 5, str. 772-788, 995. [http://www.fdv.uni-lj.si/docs/default-source/tip/tip\\_05\\_2014\\_luksic.pdf?sfvrsn=2](http://www.fdv.uni-lj.si/docs/default-source/tip/tip_05_2014_luksic.pdf?sfvrsn=2). [COBISS.SI-ID 32984157]

**BRUMEN, JERNEJA.** Uresničevanje načela sodelovanja javnosti pri upravljanju voda v Republiki Sloveniji: kako vladati skupnim vodnim dobrinam? V: Lidija Globevnik in Andrej Širca (ur.). Drugi slovenski kongres o vodah 2017. Ljubljana.

**PUSTOVRH, TONI, LUKŠIČ, ANDREJ.** Rizične tehnologije i suvremeni društveni izazovi : geoinženjering u društvu rizika. Socijalna ekologija, ISSN 1330-0113, 2012, vol. 21, no. 1, str. 5-30. [COBISS.SI-ID 31178845]

**TKALEC, TOMISLAV, LUKŠIČ, ANDREJ.** Energetska tranzicija in ovire zanjo. Časopis za kritiko znanosti, domišljijo in novo antropologijo, ISSN 0351-4285, 2015, letn. 43, št. 262, str. 55-72. [COBISS.SI-ID: 33825117]

**ŠOBOT, ALEKSANDAR.** - The Article is accepted and will be published in Socijalna ekologija in 2017. Zagreb.

Reprint is allowed by publishers of journals where the texts were first published.