CLIMATE CHANGE CHALLENGES IN SOUTH EAST EUROPE

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Dealing with Climate Change at regional, national and local level
State of affairs in Serbia

1. Introduction

Climate change is a global phenomenon that affects the countries all around the world. The greenhouse effect is a natural phenomenon that plays an important role in the transfer of heat, a natural mechanism that heats the atmosphere. The global rise in temperature could lead to climate change causing the changes in flora and fauna and therefore the changes at the level of the food chain. The increase in temperature would melt the ice in the polar regions and it would be much more precipitation.[1] This would be followed by the increase of sea level with inevitable floods. It is projected that the sea level will rise 0.25 m by the 2050.[2] Although the international and regional

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[1] R. A. Anthes *et al.*, 'Hurricanes and Global Warming – Potential Linkages and Consequences', *American Meteorological Society*, May 2006, p. 623-628.

[2] R. F. Darwin, R.. Tol, 'Estimate of the Economic Effects of Sea Level Rise', *Environmental and Resource Economics*, No. 19, Kluwer Academic Publisher, 2001, p. 123-124. See:

cooperation in climate change mitigation is of great interest, every country should give its own contribution establishing efficient climate change law at the national level. This paper aims at reflecting on the challenges of climate change and the responses the Republic of Serbia has built to this problem. The objectives is to explore how climate change is being framed and how public bodies are responding to it in terms of policy strategies and instruments. Finally, it will be analyzed the level of the harmonization of Serbian law and EU law in the field of climate change.

As a complex problem climate change raising issues across a number of disciplines. It includes natural sciences, political sciences and social sciences. It is said in the Intergovernmental Panel on Climate Change (IPCC) report that 'Natural, technical, and social sciences can provide essential information and evidence needed for decisions on what constitutes 'dangerous antropogenetic interference with the climate system.' At the same time, such decisions are value judgments ...' [3] Look through the history of science in Serbia, the greatest impact on climate monitoring and research had a distinguished Serbian scientist Milutin Milankovic (1879-1959). He was the lecturer at the University of Belgrade who first understood the effect of key factors of natural long-term climate changes. The results of his astronomical theory of climate change on Earth were presented in 1941. Following the professor Milankovic' legacy, new generations of researchers at the University of Belgrade achieved significant results in numerical modeling of the atmosphere. But, in the 1990s, economic an social situation in Serbia slowed down research antropogenic influence on climate change. Since 2000, Serbia have been having a process of research development in the climate change. This also include the improvement in climate change law and activities in the field of ratification of international agreements and its implementation.

2. Administrative capacity

G. A. Meehl *et al.*, 'How Much More Global Warming and Sea Level Rise?', p. 1770-1771.

[3] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2001: Synthesis Report*, Cambridge University Press, 2001, p. 2.

Regulation and implementation of the climate change law need a strong administrative capacity at the national level. In Serbia, we may analyze the potential of administrative capacity throw the jurisdictions and competences of the Ministry of Energy, Development and Environmental protection, the Serbian Environmental Protection Agency (SEPA) and the Republican Hydro-Meteorological Service (RHMS).

In Accordance with new Law on Ministries[4] the Ministry of Energy, Development and Environmental protection bears main responsibility for formulating and implementing climate change policy. The Ministry is the national focal point for the implementation of the United Nations Framework Convention of United Nations on Climate Change and Kyoto Protocol. It cooperates with a number of other ministries and authorities with climate responsibilities such as Ministry dealing with the Agriculture, Forestry, Water Management, Economy, Regional Development.

In 2004, Serbia established the Serbian Environmental Protection Agency (SEPA). SEPA is not an independent body but the body within the Ministry of Energy, Development and Environmental protection, with a legal entity, that is responsible for data collection, processing and reporting on GHG. Ministry has the authority to exercise control over the SEPA.[5] Among other things, the SEPA is responsible for the tasks related to the: 'development, coordination and management of the national information system for environmental protection (monitoring of environmental through environmental indicators; register pollutants, etc.).; implementation of state monitoring air and water quality, including the implementation of the agreed program of prescribed air quality, surface water and ground water aquifer, rainfall, managing national laboratories, data collection and collation environmental, processing and preparation of reports on the state of the environment and the implementation of environmental policy, the development of procedures for the processing of environmental data and assessment, keeping information about best available techniques and practices and their application in the field of environmental protection, cooperation with the

[4] *Law on Ministries*, 'Official Gazette of the Republic of Serbia', no. 72/12.

[5] *Law on Environment Protection*, 'Official Gazette of the Republic of Serbia', no. 36/09, Article 109a

European Agency for the Environment Agency (EEA) and the European Network for Information and Observation Network (EIONET), as well as other statutory duties.'[6]

In order to monitor emissions and quantities of greenhouse gases SEPA established National Greenhouse Gas Emissions Inventory.[7] The system is set on the way that, on the basis of collected data, SEPA calculates emissions and removal of greenhouse gases by the sinks pursuant to provisions and requirements of the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Received calculation results and quantities of removed greenhouse gases by the sinks are integral part of the National Greenhouse Gas Emissions Inventory. The Inventory is a data base organized by sectors which contains:

1. collected data on activities required for reporting on all anthropogenic greenhouse gas emissions from sources, and removal of the gases by the sinks;
2. applied emission factors;
3. calculation of emission values and removal of greenhouse effect gases;
4. additional information and hypothesis used for calculation;
5. reports on greenhouse effect gases inventory.[8]

In 2010, European Commission pointed out that SEPA was fully operational and its performance was improved.[9] On August 2012, new government come with the proposal of closing SEPA. Having in mind the competences, importance and SEPA's previous work we believe that solution should be find throw the reorganization of SEPA.

The third pillar of administrative structure dealing with the climate change is Republican Hydro-Meteorological Service (RHMS).[10] RHMS is in charge of monitoring, research and forecasting. Within the RHMS a National

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[6] *Law on Ministries*, Article 14 (3)

[7] *Law on Environment Protection*, Article 1 (8).

[8] *Bylaw on a methodology of collecting data for the National Greenhouse Gas Emissions Inventory*, 'Official Gazette of the Republic of Serbia', no. 76/10, Article 4.

[9] Commission staff working document, *Serbia 2010 progress report accompanying the Communication from the Commission to the European Parliament and the Council*, COM (2010) 660, p. 44.

[10] Republican Hydro-Meteorological Service (RHMS), available at: http://www.hidmet.gov.rs/latin/ipcc/index.php

Centre for Climate Change is established in 2007. This Centre perform the functions of the Sub regional South-East European Virtual Climate Change Centre.

3. Legal framework and the integration of climate change law into the national development strategy

Republic of Serbia is a member of the UN Framework Convention on Climate Change since 10th of June 2001. The Kyoto Protocol came into force on 17th of January 2008. The Republic of Serbia, as a non-Annex I state member of the Convention, in line with its capabilities and principles of sustainable development, endeavours to contribute to the fulfilment of the primary goals of the Convention. Serbia also associated itself with the Copenhagen Accord.

After the ratification of Convention Serbia made efforts to establish legislation and policy framework in order to reach the requirements of the Convention. The first set of laws in the field of environmental protection, directly related to combating climate change, was adopted in 2004 (the Law on environmental protection,[11] the Law on environmental impact assessment,[12] the Law on strategic environmental impact assessment[13] and the Law on Integrated Environmental Polution Prevention and Control [14]). After the ratification of the Kyoto Protocol in 2008, the climate change issue has been recognized as a multi-sectoral problem that needs to be included in sector strategies and national development strategies in general. Just after entry into force of the Kyoto Protocol Serbia established the institutional and legislative framework for the implementation of the Clean Development Mechanism (CDM) In 2010, the Government adopted the National Strategy of

[11] Available at: http://www.ekoplan.gov.rs/en/2-Law-on-Strategic-Environmental-Impact-233-document.htm

[12] *Law on Environmental Impact Assessment*, 'Official Gazette of the Republic of Serbia', no. 135/04. *Law on Amendments to Law on Environmental Impact Assessment*, 'Official Gazette of the Republic of Serbia', no. 36/09.

[13] *Law on Strategic Environmental Impact Assessment*, 'Official Gazette of the Republic of Serbia', no. 88/10.

[14] *Law on Integrated Environmental Polution Prevention and Control,* 'Official Gazette of the Republic of Serbia', no. 135/04.

Inclusion of the Republic of Serbia in the Clean Development Mechanism in the Sectors of Agriculture, Forestry and Waste Management.[15] The basic goal of this Strategy is to build capacity and raise awareness of stakeholders on the CDM as well as to identify the potential project and financial possibilities to carry them out.[16] In February 2012, the first CDM projects in Serbia were registered by the UNFCCC. It is 'Wind Farm Cibuk 1'.[17] Three more projects are in progress.

The beginning of the process of EU accession and harmonization of Serbian legislation with that of the EU has the important influence on further development of climate change policy and law in Serbia. This can be explain by the fact that main principles of the relevant EU legislation are based on the principle of combating climate change. In order to harmonize the economic recovery with the sustainable development and accomplish the preconditions of EU accession, over the last couple of years, Serbia has included climate change issues to a great extent in sectoral law and development strategies. For example, the Sustainable Development Strategy (adopted in 2008) and the National Environmental Protection Programme (adopted in 2010), treat the climate change problem as being very important. In that sense, the Sustainable Development Strategy sees climate change as a top environmental risk factor. One of main goals in the environment sector is to enable exiting institutions to actively implement climate protection policies and to meet the obligations of international agreements (UNFCCC, Kyoto Protocol, etc.), as well as to produce an Action Plan for the adaptation of economic sectors to climate change.[18]

Different actions of mitigation and adaptation to climate change are defined in other sectors. The Priority to the activities contributing climate change mitigation is given with the National Environmental Protection

[15] National Clean Development Mechanism Strategy, „Official Gazette of the Republic of Serbia', no. 8/10.

[16] Ministry of environment and spatial planning, *National Clean Development Mechanism Strategy*, Belgrade, 2010, p. 4. Available at: http://www.ekoplan.gov.rs/en/15-Ostala-dokumenta-127-document.htm

[17] Information about the 'Wind Farm Cibuk 1' project are available at: http://cdm.unfccc.int/filestorage/A/B/C/ABCRGEV0H589FJXUDLQTP3SIOMNKYZ/PDD.pdf?t=Q1J8bWE3ZDNhfDBxg7ywhGWXlv2cOnWxtyUx

[18] *National Sustainable Development Strategy*, Belgrade, 2007, p. 75. Available at: http://www.un.org/esa/agenda21/natlinfo/countr/serbia/nsds_serbia.pdf

Programme. The Strategy of Energy Development by 2015,[19] the Strategy of Forestry Development[20] and the Strategy of Scientific and Technological Development,[21] as sectoral strategic documents, also recognize the importance of the creation and implementation of activities of climate change mitigation and adaptation in the process of economic development. Two from five main priorities in the Serbian Energy Sector Strategy Development are Increasing energy efficiency and the use of renewable energy resources by 2015.

The Forestry Development Strategy includes the UNFCCC among the most important international obligations within the sector. In that sense, 'The Government will, bearing in mind the forest hazard caused by anthropogenically induced climate changes and their regulatory functions in the global carbon cycling, support the research and analysis of the potential scope and method of carbon sinks in forests, promote the efficient generation and consumption of bio-energy from the sustainably managed forests, pursuant to the UN Framework Convention on Climate Change and Kyoto Protocol, and thus create the conditions for applying for the international funds for the increase of forest area.'[22]

In the National Strategy for Biodiversity and the Action Plan is stressed that: 'There is no systematic monitoring of the impacts of climate change on biodiversity within the Republic of Serbia. Current research and planning has primarily been based on global findings and the experiences and recommendations of other countries. There is, however, some data on forests where changes to underground water levels have been monitored, as have their impacts on forest drying and impacts on stand compositions (monitored

[19] The Republic of Serbia, Ministry of Mining and Energy, *Energy Sector Development Strategy of the Republic of Serbia by 2012*, Belgrade, 2005, p. 14-16. Available at: http://www.ssl-link.com/mre/cms/mestoZaUploadFajlove/Serbian_energy_strategy_-fianl__EN.pdf

[20] The Republic of Serbia, Ministry of Agriculture, Forestry and Water Management, *Forestry Development Strategy for the Republic of Serbia*, Belgrade, 2006, p. 26. Available at: http://www.fao.org/forestry/16159-0f033f89b9da00ac3d5a3c81cda247f26.pdf

[21] The Republic of Serbia, Ministry of Science and Technological Development, *Strategy of Scientific and Technological Development of the Republic of Serbia 2010-2015*, Belgrade, 2009. Available at: http://www.nauka.gov.rs/eng/images/stories/vesti/Strategy/100501-strategija-ENG-1.pdf

[22] The Republic of Serbia, Ministry of Agriculture, Forestry and Water Management, *Forestry Development Strategy for the Republic of Serbia*, Belgrade, 2006, p. 18.

for Narrow Leaf Ash and Oak Species).'[23] For that reason, developing a national strategy and mechanisms in order to understand, plan and minimize possible effects of climate change on biodiversity are of grate importance.

We may conclude that the issues of climate change are implemented into sectoral and general development strategies. In spite of that, the level of knowledge and institutional capacities, and the status of available technologies are still far from below that necessary for an effective and fast response to this problem. For these reasons, 'strengthening cooperation at both bilateral and multilateral levels, as well as continuing cooperation with Global Environmental Facility in drafting the Second National Communication among the other, is fundamental for the effective national implementation of the Convention.'[24]

4. International cooperation in the field of climate change

Serbia presented the First National Communication of the Republic of Serbia in 2010. With this Communication Serbian Government tried to establish list of activities that would contribute to the climate change mitigation not only on the global level, but also on the national level. For that reason, in the Communication are presented investigations and policies in the area of climate change, national capacity building and attainment of knowledge and sustainable development of the country. The First Communication will be the base for the future national reports.

During the writing of the Communication Serbia was part of different bilateral cooperation that had an immeasurable impact on its formulation. The process of drafting Serbian Initial National Communication started in 2005. At that time, the Communication was prepared by the State Union of Serbia and Montenegro. From the first phase Serbia cooperated with the Italian Ministry of the Environment, Land and Sea. The object of this bilateral cooperation was strengthening local and national capacities on environmental governance,

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[23] The Republic of Serbia, Ministry of Environment and Spatial Planning, *Biodiversity Strategy for the period 2011-2018*, Belgrade, 2011, p. 65. Available at: http://www.ekoplan.gov.rs/en/upload-centar/dokumenti/razno/biodiversity_strategy.pdf

[24] See: *Serbia's First National Communication Under the United Nations Framework Convention on Climate Change*, available at: http://www.ekoplan.gov.rs/en/upload-centar/dokumenti/zakoni-i-nacrti-zakona/propisi/serbia_inc_english_version.pdf

transferring know-how and technologies to prevent and control environmental pollution and water management and promoting renewable energy and energy efficiency.[25] The cooperation with the Italian Ministry continues through the legal and technical assistance in facilitating the Kyoto Protocol ratification and evaluation of the national greenhouse gases emissions and the climate change impacts. Due to the lack of data and security of the calculation at the and of this assistance Serbia didn't made complete inventory.[26]

In 2006, Serbia started a cooperation with the Kingdom of Norway on a project: "Norwegian assistance to Serbia for the introduction of a new energy efficiency policy, energy balance on the local level and implementation of the Kyoto Protocol". During this project, a preliminary assessment of the GHG (emissions from the energy sector was realized. 'Due to delays in the implementation of the GEF project, in mid-2009, the Ministry of Environment and Spatial Planning, in cooperation with the public enterprise „Elektroprivreda Srbije" launched an initiative to produce a provisional inventory of GHG emission projections. This project was an additional contribution by the state to the process of drafting the INC.'[27]

From 2006 to 2008 the Belgrade University Institute for Meteorology, National Hydrometeorological Service of Serbia and the South East European Virtual Climate Change Centre participated in the bilateral project Simulations of Climate Change in the Mediterranean Area. The project was managed by the Euro-Mediterranean Centre for Climate Change and the Italian National Institute for Geophysics and Volcanology.[28]

During the drafting of the First National Communication Serbia made a cooperation with the Spanish Agency for International Cooperation in

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[25] Republic of Italy, Ministry of the Environment, Land and Sea, *Forth National Communication under the UN Framework Convention on Climate Change*, Italy, 2007, p. 236. Available at: http://unfccc.int/resource/docs/natc/itanc4.pdf.

[26] Republic of Italy, Ministry of the Environment, Land and Sea, *Forth National Communication under the UN Framework Convention on Climate Change*, Italy, 2007, p 237.

[27] *Serbia's First National Communication Under the United Nations Framework Convention on Climate Change*, p. 108.

[28] S. Gualdi, *et al.*, *Simulations of climate change in the mediterranean Area*, Final scientific report, INGV, 2008. Available at: http://www.earth-prints.org/bitstream/2122/4675/1/SINTA_FInal%20Science%20Report%20_October%20 2008.pdf.

Development within a project 'Climate Change Effects on Biodiversity in Southeast Europe'.[29] 'The contribution of the state to the process of drafting the INC is also reflected in the work of governmental officials and employees of public enterprises in the process of data collection and participation in the preparation of relevant strategic documents (directly or indirectly used) and the INC.'[30]

5. Public participation in decision-making concerning climate change

Public participation is commonly advocated in policy responses to climate change. Public participation is an important normative goal in formulating response to climate change risks. The practice of public inclusion in decision-making concerning climate change should be found throw the existing forms of participatory processes in other contexts but taking into account the specific challenges of climate change nature. The questions that arise are who should be identified as a stakeholder and how to involve a wide range of stakeholders in climate change policy decision-making?[31]

There are three main groups of participants that should be identified in the process of climate change policy decision-making. This include: a) participants who are directly exposed to the negative impact of climate change; b) experts in various fields who can make an analysis of the factors that affect climate change and analysis of the climate change consequences; c) administrative bodies that have key role in formulating climate change policy and the decisions regarding the implementation of adaptation measures to climate change.[32] The procedure of formulating climate policy that would exclude the participation of any of those groups lead to the formulation of policy that does not include all relevant elements. In Serbia, public may have the influence on formulation of climate change policy in a process of

[29] R. Lausevic, V. Stevanovic, 'Serbia', R. Lausevic, *et al.* (eds), *Climate change and biodiversity in South-East Europe – impact and action*, REC, 2008, p. 42-49.

[30] *Serbia's First National Communication Under the United Nations Framework Convention on Climate Change*, p. 109.

[31] M. Drenovak Ivanovic, *Public Inclusion in Climat Change Policy*, in Monograph 'Legal and Economic Challenges of Climate Change', Belgrade, 2011, p. 157-171. *Implementation of the Aarhus Convention in Serbia*, in „European Energy and Environmental Law Review', Kluwer Law International, No. 2, Vol. 2, 2011, p. 58-71.

[32] *Ibid*.

environmental impact assessment of plans, programs and policies. The strategic environmental impact assessment procedure is divided into three phases: a) preparation, which aims at decision making on a strategic impact assessment, b) drafting stage of the environmental impact assessment report, and c) phase of consent, ie. adoption of the report. By the Serbian Law on Strategic Environmental Impact Assessment Public participation is provided only at the stage of deciding on the strategic impact assessment, ie. in the third and final phase.[33] The fact that public is not involved in the process of strategic environmental assessment from the first phase reduce the level of public interest in this process.[34]

Comparative studies indicate that the public shows increasing interest and concern for climate change, global warming and energy efficiency. In this sense, the public demonstrates a high level of support the implementation of measures to eliminate the adverse effects of climate change.[35] Oposide to those comparative studies, in Sebia is noticed the lack of public interest. In terms of public participation in decision-making in environmental matters, it may be concluded that the legislation of Serbia is in accordance with the Aarhus Convention (Article 6-8).[36] The largest issue in application of the Aarhus Convention and harmonized legislation of Serbia is a small citizens' interest in decision-making process. 'The results of analysis and research show that public awareness about climate change and environmental protection is, in general, unsatisfactory. Research results (year 2009) showed that only 3 per cent of the respondents believed that environmental problems and protection of the environment are the biggest problems in Serbia. In principle, the interest of citizens in environmental issues is high (38 %), but this is not in accordance with their knowledge regarding these problems or their concrete engagement. In order to activate public participation in resolving

[33] *Law on Strategic Environmental Impact Assessment*, 'Official Gazette of the Republic of Serbia', no. 88/10.

[34] M. Drenovak Ivanovic, *Implementation of the Aarhus Convention in Serbia*, in „European Energy and Environmental Law Review', Kluwer Law International, No. 2, Vol. 2, 2011, p. 58-71.

[35] R. J. Bord, A. Fisher, R. E. O'Connor, 'In what sense does the public need to understand global climate change?', *Public Understanding of Science*, Vol. 9, 2000, p. 205-218.

[36] M. Drenovak Ivanovic, *Implementation of the Aarhus Convention in Serbia*, in „European Energy and Environmental Law Review', Kluwer Law International, No. 2, Vol. 2, 2011, p. 58-71.

environmental problems, including climate change, it is necessary to increase the level of knowledge and awareness in this field. Significant efforts are being invested to organize campaigns that will inform public not only about the causes and threats of climate change, actions and prevention measures and the possible use of flexible mechanisms, but also through public hearings to involve the public in the creation and implementation of strategies, action plans and other strategic documents.'[37]

The NGOs dealing with environmental protection and registered with the competent authority also has the right to participate in strategic environmental impact assessment. Environmental NGOs in Serbia are mainly involved in general environmental protection. In recent years issues of climate change has became a subject of their activities. Although the participation of NGOs in this proccess is very important there were only few cases of strategic impact assessment where they were involved. While Biodiversity Strategy for the period 2011-2018 emphasizes that 'NGOs are often associations of experts, rather than civil society associations serving as a means for experts to obtain additional funding'[38] and that 'they were not established as a response to specific ecological problems, but rather because of the accessibility of donations and other financial sources'[39] we believe that rising level of public awareness will have the positive influence on their specialization for the issues of climate changes as well as on the quality of their influence.

6. Conclusion

There are facts that may indicate the progress in developing Serbian legal system concerning different aspects of climate change. The Government adopted the National Strategy for Incorporation of Serbia into the Clean Development Mechanism under the Kyoto Protocol and developed the First National Communication under the UNFCCC. Serbia associated the

[37] *Serbia's First National Communication Under the United Nations Framework Convention on Climate Change*, p. 103-104.

[38] The Republic of Serbia, Ministry of Environment and Spatial Planning, *Biodiversity Strategy for the period 2011-2018*, Belgrade, 2011, p. 36.

[39] The Republic of Serbia, Ministry of Environment and Spatial Planning, *Biodiversity Strategy for the period 2011-2018*, Belgrade, 2011, p. 40.

Copenhagen Accord. In Serbian legal system there are some laws that contribute to climate change mitigation. We can recognize it in the sector of energy, waste, air and forestry that also includes some adaptation measures.

With regard to the EU *acquis* on climate change Serbia is still at an early stage.[40] There are some key points that will lead to the harmonization with the EU *acquis* on climate change. First, Serbia should undertake measures to transpose the EU *acquis* covering Green House Gas emission reduction or EU Emissions Trading Scheme. Second, it is not enough just to implement but also to enforce EU standards concerning climate change. For that reason, it is necessary to build administrative capacity that will manage to implement stipulated standards, which is stressed in the Commission Opinion on Serbia's application for membership of the EU in 2010 and 2011. This necessitates substantial investments and bilateral cooperation. The previous analysis shows the need for reconsideration the position of Serbian Environmental Protection Agency. Third, raising awareness at all levels in the country about the climate change and importance of public inclusion in decision-making is of great importance. It may lead to the creation of better climate change policy and has the great influence on the implementation of measures for climate change mitigation.

[40] *Commission Opinion on Serbia's application for membership of the European Union*, SEC (2011) 1208 final, p. 119. Available at: http://ec.europa.eu/enlargement/pdf/key_documents/2011/package/sr_analytical_rapport_2011_en.pdf.