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Climate Protection Policy Framework

Policy Paper

to
The Environmental Protection Directorate
The Ministry of Science and Environmental Protection
Republic of Serbia

Summary

A set of rationales for the negligence of climate protection policy in Serbia has been analyzed, in introduction. The regionally significant level of GHG emissions, which can be explained with the high carbon intensities in economy during 1990s, characterizes current situation in Serbia and Montenegro. However, there is no official GHG inventory for Serbia and Montenegro. A variety of climate protection scenarios in the CEE countries have been studied. The lessons learned from fast-reforming CEE countries present a valuable set of information and policy alternatives for the other transitional economies, including Serbia.

Among the recommendations are: a) an advice to the Ministry to speed up preparations for the Kyoto Protocol ratification; b) a suggestion to become an Annex 1 party, not in the initial phase, but in the later stage of reforms; c) a suggestion to explore full potential of CDM projects, during the first stage; d) a proposal for the National Climate Protection Office to be established; e) a necessity to create an number of DOEs in Serbia and f) advices for joint actions with the other responsible institutions and Ministries.

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1. Introduction

There is a wide scientific consensus that global climate change is an outcome of human activities (IPCC, 2001b), and that the social and economic costs either of mitigation or adaptation to its various impacts will be very high (OECD, 2001). There is clear evidence that during a hundred years period, from 1890s to 1990s, a steady rise in the average global temperature was 0.6 °C (IPCC, 2001a). The 1990s were the warmest decade since the beginning of instrumental measuring in 1860, and according to the indirect data, obtained from proxy measurements, 1990s were the warmest decade in the last millennium (IPCC 2001b). In the contemporary science, it is also broadly accepted that the latest climate changes are closely related to the increased atmospheric concentrations of carbon dioxide, methane, nitrous oxide, and other greenhouse gasses (GHG).

In spite of all mentioned, in Serbia and Montenegro (FR Yugoslavia) a little has been done in the field of climate protection. Several rationales for this can be stated:

A) During 1990s, when the global awareness about climate change became apparent in the international scientific and policy circles, FR Yugoslavia was seriously hit by a severe political crisis, international sanctions, unprecedented economic depression, and at last, a NATO military campaign.

B) Economic crisis characterized by one of the highest inflations in the world's history totally paralyzed any attempt of strategic reforms and transformation of the society.

C) Both of the mentioned reasons, for ignoring climate change problems, and broadly speaking, for the negligence of most environmental issues, fundamentally can be linked to a general incapability and unwillingness of the Serbian social and political elite to understand and to conduct substantial political and economic changes. Transition towards market economy and political democracy in Serbia and Montenegro was intentionally abandoned by turning a tremendous social and psychological energy, embodied in the willingness for changes, into a vulgar and primitive nationalism. In the atmosphere of a heavy nationalist and populist contamination, Serbian society was absolutely uninterested for any global and environmental issues. Broadly speaking, the spirit of false nationalism and populism led FR Yugoslavia to the international conflicts, economic disaster and social disintegration during 1990s.

In front of the Serbian government and society lies just a single priority to bring back Serbia to the real values of modern civilized world, back to the ideals of political democracy, market economy, and open society. Integrating Serbia and neighboring countries into the European Union (EU) will make true all the stated goals.

Environmental Protection is amongst the highest priorities in the EU countries. Climate protection policies are on the top of environmental policy agenda in all of the

current EU members and the accession countries.[1] This means that Serbia will soon have to put climate protection issues in the focus of policy processes.

2. Current situation

In June 1997, FR Yugoslavia ratified the United Nations Framework Convention on Climate Change (UNFCCC). Besides that, nothing has been done in the climate protection policy field. FR Yugoslavia hasn't signed the Kyoto Protocol[2] and was excluded from the ongoing preparations to meet the Protocol commitments.

During nineties FR Yugoslavia was a regionally significant producer of GHG. The reason can be found in a high carbon intensity of the Yugoslav economy during 1990s, much higher than in some of the CEE countries and EU (Figure 2).

The analysis is based on the data that take into consideration only carbon dioxide emissions from fuel combustion, not from the other sources. With other sources included, carbon intensity of the Yugoslav economy would be even higher.

At the moment, there is no official GHG inventory for Serbia and Montenegro (FR Yugoslavia). The only official data about carbon dioxide emissions from fuel combustion can be found in the International Energy Agency database (Figure 1).

From the sectoral structure of GHG emissions (Table 1) it can be seen that energy sector was the main source of GHG emissions. The rationale for a low impact of the industrial sector and a high impact of agriculture to the total level of GHG emissions in FR Yugoslavia can be found in a fact that the industrial production was badly affected by economic crisis, during 1990s, and the decline in agriculture was much lower than in the other sectors.

[1] Under the "Burden Sharing Agreement" adopted on April 25, 2002 (Decision 2002/385/EC) all 15 EU member sates commited themselves to reduce GHG emissions by 8% below 1990 levels during the first period from 2008 to 2012. By Decision 2004/280/EC of the European Parliament and the Council (entered into force on March 10, 2004) all the requirements under the Kyoto Protocol became legally binding in all Member States. The Decision realates in particular to the way in which emissions have to be monitored, accounted and reported. With this step all provisions of the Kyoto Protocol have become EU law. (EU 2004)

[2] The Kyoto Protocol defines allowable amounts of emissions for each industrialized country, in terms of assigned quantities for the commitment period from 2008 to 2012. The commitments, in a form of quantified emission reductions (as percentages of the base period levels), apply to the countries that had ratified the Protocol, and are listed in Annex B. In order to enter into force the Protocol must be ratified (approved, accepted or acceded) by 55 Parties, accounting for minimum 55% of 1990 GHG emission level (KP, 1997: Art. 25). So far 110 countries have signed the Protocol and 31 ratified it, accounting for 43.9% of 1990 emissions. http://unfccc.int/resource/kpthermo.html

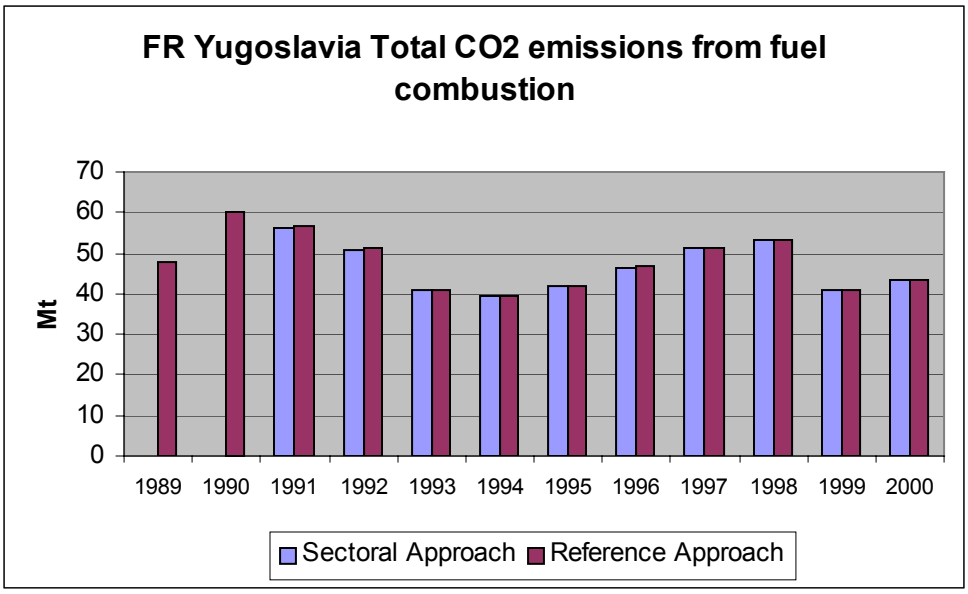

Figure 1. FR Yugoslavia Total CO2 emissions from fuel combustion. (Source: IEA, 2002)

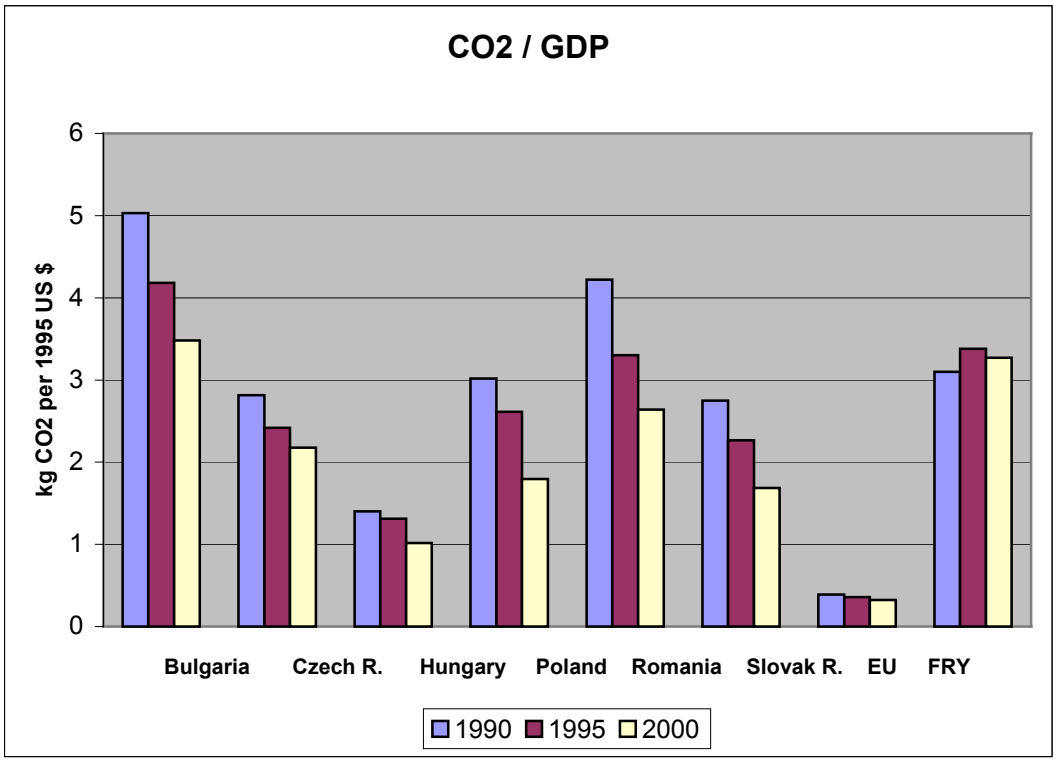

Figure 2. Carbon intensities in some of CEE economies and EU. (Source: IEA, 2002)

	Energy	Industrial Processes	Agriculture	Land-use Change and Forestry
1990	74.0	9.0	23.0	-5.5
1991	70.7	6.2	23.8	-2.3
1992	68.8	5.2	28.4	-4.7
1993	67.6	1.9	33.0	-6.1
1994	65.6	3.0	35.4	-8.2
1995	66.9	2.6	32.5	-5.0
1996	67.5	4.8	29.5	-4.5
1997	66.8	9.1	26.4	-4.8
1998	64.3	11.4	26.5	-4.7

Table 1. Sector structure of GHG emissions in FR Yugoslavia, 1990-1998 (% of total emissions) (Source: Dacic, 2003)

In June 2002, the Serbian government established Ministry for Protection of Natural Resources and Environment. Initiating the first comprehensive environmental analysis and preparing policy scenarios, in the form of framework national strategies for certain areas, the Ministry created a turning point in environmental policy. Among many other pioneering activities, the Serbian Ministry, with the help of GEF, set up a project aimed to enable Serbia and Montenegro to prepare the First National Communication to the UNFCCC. However, by now, the project has not been completed.

3. Alternatives Assessment

On a contrary to the situation in FR Yugoslavia, nearly all of the countries in Central and Eastern Europe (CEE) are actively involved in climate protection. Most of the transitional CEE countries have ratified the Kyoto Protocol as Annex 1 parties committing themselves to the significant emission reductions by more than 5%. The challenges of climate protection in Central and Eastern Europe (CEE) are significant (Baumert et. al., 1999). There are several reasons for that. **First**, owing to the transitional recession, in all of the post-communist states, current GHG emissions are already far below 1990 levels (Table 2). **Second**, during 1980s and 1990s, all of the CEE countries experienced very high carbon intensities, much higher than in OECD. The typically high carbon intensities indicate that a significant potential for low-cost emission opportunities exist in the region. **Third,** the Kyoto Protocol offers special provisions for the countries in transition, giving them a certain degree of flexibility in the base year selection (KP, 1997: Art. 3.4 and Art. 3.5)[3]. **Fourth,** climate protection activities can bring substantial

[3] Owing to the mentioned flexibility, calculated carbon emission base levels in Poland, Hungary, Bulgaria and Romania are on average 22% higher than the real 1990 levels, which results in significantly easier reduction requirements (Baumert, 1990).

environmental, economic and financial benefits, fostering technology transfer, and financial flows from the West. Upgrading technology, improving energy efficiency, raising human capital potentials and improving air quality are the most obvious potential advantages of climate protection policies adopted in the region

COUNTRY	BASE YEAR	KP TARGET	BASE EMISSION *X*	1999 EMISSION *Y*	CHANGE % *(Y-X)/X*
Bulgaria	1988	-8%	131,856	58,736	-55.45
Czech Rep.	1990	-8%	180,753	132,310	-26.8
Estonia	1990	-8%	42,470	19,301	-54.55
Hungary	1985/7	-6%	97,628	75,228	-22.94
Latvia	1990	-8%	27,642	12,369	-55.25
Lithuania	1990	-8%	47,472	21,479	-54.75
Poland	1988	-6%	542,579	378,300	-30.28
Romania	1989	-8%	244,323		
Slovakia	1990	-8%	66,795	48,341	-27.63
Slovenia	1990	-8%	17,636		

Table 2. Annex I CEE countries, base emissions[4], 1999 emissions[5], and emission changes. (Source: UNFCCC GHG database)

Table 2 shows that all of the analyzed countries, except Slovenia[6], are expected to achieve the Kyoto Protocol targets with no difficulties, because their current GHG emissions are approximately from 23% to 55% below the base level. Although it may seems that in all of the analyzed countries the Kyoto Protocol target is a "low hanging fruit", much remains to be done. There are still significant differences in carbon intensity between CEE and EU economies, and a great potential for improvements exists in the region. The most important carbon saving activities and policies are connected with the energy sector reforms. Restructuring of the energy sectors in CEE is one of the most sensitive and complex transitional issues (Ürge-Vorsatz et.al.2002).

Many of the CEE countries have undertaken complex multi-sector policies, targeted to increase energy efficiency. Hungary, Czech Republic, Estonia and Slovakia have prepared National GHG mitigation strategies that were included in the National communications to the UNFCCC. A similar document is in a course of preparations in Poland. The National climate change strategies include a broad range of fiscal instruments (carbon taxes, energy fuel taxes, electricity taxes, renewable energy subsides), technical standards (energy labeling and building codes), transportation policies and agricultural policies. Information and awareness programs on energy efficiency are applied in all of the Annex 1 countries in the region.

One of the greatest advantages of transitional economies lies in an opportunity to include climate protection standards and sustainable development patterns in the

[4] CO_2 CH_4 HFCs PFCs and SF_6 total emissions in Gg of CO2 equivalent. Source: UNFCCC http://ghg.unfccc.int/default1.htf

[5] 1999 data for Romania and Slovenia are not available.

[6] Owing to the very low GHG emission base level, Slovenia is expected to be the only CEE country that may have problems with the Kyoto Protocol commitments. (Maly, et.al. 1999).

restructuring processes. Structural and institutional changes aimed to create market economy, may also have carbon-efficiency and energy-efficiency improving effects. Environment protection policies included in the early stages of transition may be cost-effective in the long run. That is the case of so called "no regret" policies, which produce "double dividend" effects[7].

Identification, elaboration and implementation of "double dividend" climate protection polices open a broad field of opportunities for CEE countries. National Climate Change Action Plans have been completed in Bulgaria, the Czech Republic, Poland and Hungary. The Plans identify and prioritize measures that will help countries to meet their Kyoto Protocol commitments. Besides description of the potential GHG reduction measures, cost estimation analysis have been made as a part of the Plans. In spite of the fact that the estimated costs of various policies differ from one country to another, the envisaged measures are similar (Table 3).

Most of the CEE countries that have ratified the Kyoto Protocol, as UNFCCC Annex 1 parties, were involved in Activities Implemented Jointly (AIJ). AIJ program was initiated in 1995 as the pilot phase for Joint Implementation (KP Art. 6). Like the Joint Implementation, AIJ projects were aimed to reduce GHG emissions and sequester carbon. However, no credits have been obtained from the AIJ projects. Experiences gathered in AIJ projects are expected to help CEE countries to identify legal barriers and institutional defects that may deter Joint Implementation Projects.

County	**Opportunities for Cost effective GHG emission reduction measures**
Bulgaria[8]	Gas supply to households, commercial and administrative buildings Demand side measures in industry and households Reduction of thermal and electric losses Hydro potential projects
Czech Republic[9]	District hearting and CHP Hydro potential projects Biomass utilization in public and private sector Wind, solar and geothermal energy use Collection and use of landfill methane
Hungary[10]	Communal district heating and CHP Installation of better-insulated windows Installation of low-flow faucets and shower heads Active solar water heating systems in the household sector Installation of compact fluorescent lights
Poland[11]	Improving heat insulation in the residential sector Rationalization of heat and energy use

[7] "Double dividend" can be explained as: 1) positive externalities linked with economies of scale or economies of scope that simultaneously produce environmental benefits and 2) positive economic effects obtained from environmental policies.

[8] Source: Maly, M. et. al (2002)

[9] Source: Maly, M. et. al (2002)

[10] Source: Zilahy, G. et. al. (2000)

	Landfill gas collection and use Wind solar and geothermal energy use Agricultural biogas use Wood and straw fired boilers Small hydro-power plants
Romania[12]	District heating modernization Improving heat insulation Hydro energy use
Slovakia[13]	Biomass use in district heating and industry Geothermal and solar energy use Introduction of combined circle in CHP and industry
Slovenia[14]	CHP and district heating Biomass use Hydro power use Waste management improvements Demand side measures in industry and buildings

Table 3. Opportunities for the cost-effective GHG emission reduction measures in some of the Annex 1 CEE countries.

It can be concluded that most of the transitional CEE countries have been successfully involved in the international efforts to protect climate. Some of the fast-reforming economies have already achieved significant improvements in many aspects, including energy efficiency, carbon-saving technologies, environmental awareness and in the international standards application. It is not surprising that fast-reformers were closest to the EU accession. However, a chance of becoming a EU member has been among the main accelerators of the reforms and growth in the region.

The lessons learned from the fast- reforming CEE countries present a valuable set of information and policy alternatives to the other transitional economies including Serbia.

4. Recommendations

I The Union of Serbia and Montenegro has an aspiration to become a EU member. By ratifying the Kyoto Protocol, and by accepting the Annex 1 status, all of the current EU members and all of the accession countries have committed themselves to an important set of obligations. This means that the Union of Serbia and Montenegro will be obliged to join the Kyoto Protocol and Annex 1, before the accession. The Kyoto Protocol offers a set of instruments (flexible mechanisms) that are not only aimed to help

[11] Source: Wisniewski, G. ed. (2000)
[12] Source: Maly, M. et. al (2002)
[13] Source: Maly, M. et. al (2002)
[14]Source: Maly, M. et. al (2002)

member countries to meet their commitments, but also may have positive macroeconomic effects, on employment, technical progress and foreign investments.

Ignoring the climate protection issues in Serbia and Montenegro is not only unfeasible, but is impossible in the long run. Although it is hard to estimate, in pecuniary terms, the exact amount of potential loses caused by ignoring of the climate protection issues, it is clear that without joining the Kyoto Protocol Serbia and Montenegro will be excluded from the European integration processes.

We strongly recommend to the Ministry of Science and Environmental Protection to speed up preparations for the Kyoto Protocol ratification.

II If the Governments of Serbia and Montenegro accept to sign the Kyoto Protocol, it will be necessary, before obtaining the Parliamentary approval, to decide whether to become an Annex 1 party or not. The decision should be based on the following:

In the course of EU accession Serbia and Montenegro will accept Annex 1 status. ***However, it is inadequate to become an Annex 1 country in the early stage of accession process***. There are several reasons for this:

a) Political reasons are connected with still unfinished legal foundations of the Union. Constitutional definition of Kosovo and Metohija needs to be clarified. Before accepting legally binding quantified constraints on GHG emissions, Serbia and Montenegro must have clear legal responsibilities.

b) Environmental-policy reasons come from the fact that Serbia and Montenegro still do not have official information about GHG inventory. The First National Communication to the UNFCCC should be completed and submitted. The exact amount of "hot air" should be estimated previously to any strategic decision. Before the Kyoto Protocol is to be ratified, all potential conflicts of interest about the emission baselines, between former Yugoslav countries, especially between Serbia and Croatia must be solved.

III ***Before accepting the Annex 1 status Serbia and Montenegro may be involved in CDM projects***. Clean Development Mechanisms can be implemented in Serbia and Montenegro with a great success. The most favorable fields for CDM investments can be found in: a) the Serbian Electricity Company (EPS) reforms, that are expected to take place from 2004 to 2007, b) restructuring and modernization of more than forty district heating local companies, c) modernization of traffic infrastructure and upgrading of railway facilities, d) organic farming and modernization of the conventional animal-husbandry systems, e) improvements in the waste management practices, f) exploiting potentials of small hydro-power plants, g) using thermal, wind, solar and other renewable energy sources, and h)using bio-diesel fuels in agriculture and food processing industry. A list of the most lucrative carbon saving project has to be made in order to keep them prepared for unilateral CDM investments and international emission trading activities.

Favorable field for CDM investments can also be found in buildings and communal infrastructure sector. CDM projects in building and construction sectors will produce not only energy-efficiency improvements, but will ultimately have a very positive impact on employment.

Assuming investment-multiplier effects of the CDM projects, it can be concluded that the expected amount of 50-80 million US $ per year in CDM investments[15] would create 4000-6400 of the new jobs in Serbia annually.

IV In order to make CDM projects operative the Serbian Government needs to designate a National Authority. The National Authority takes part in the validation process and has responsibility of certifying that the projects contribute to the domestic sustainable development goals. ***In Serbia it would be necessary to create a National Climate Protection Office.*** Besides the other activities, connected with the domestic policies, the Office will act as a National CDM Authority. Such an Office would be able to integrate CDM investments with national priorities. Its task would also include investing in the most lucrative carbon-saving projects and keeping them as a domestic asset. The most lucrative projects are one with the lowest cost of GHG mitigation per ton. Such projects with costs less than 2,5 $ per ton of mitigated CO2, should be kept under regulation of the National Climate Protection Office, in order to exploit the highest benefit from the international emissions trading.

Among other activities, the National Climate Protection Office will be responsible for a) GHG inventories keeping; b) preparation, implementation and supervision of the National GHG mitigation strategy and National Climate Protection Action Plans; c) managing of public education and awareness rising campaigns.

V ***It will be necessary to create a number of Designated Operational Entities (DOEs) in Serbia.*** Assuming the complexity of DOE's responsibilities, an international help in the DOE creation would be very welcome. The overall efficiency of DOE operations may have positive influence on the transaction costs of the CDM investing in Serbia.

VI ***It is high time for Serbia to introduce some of the "no regret" policies*** like product-labeling campaigns. Exploiting the lessons learned from Hungary and the Czech Republic, it would be beneficial to try to introduce Energy Service Companies (ESCOs) in Serbia.

VII ***Jointly with the Ministry of Energy and Mining and with the National Energy Efficiency Agency, it would be necessary to include carbon-saving activities in the ongoing energy sector reforms.*** In that sense, it would be beneficial to adopt a full member status in the Energy Charter Conference. At the moment Serbia and Montenegro is the only European nation with an observer status.

VIII The idea from Poland, to organize a national competition for the best carbon-saving project in the municipal sector and to finance the winner may be very

[15] According to Mr. Eric Carlson, during 2001 and 2002 the Serbian Electricity Supply Company (EPS) removed approximately 2 million t CO2 eq from upgrades to the system, essentially through efficiency gains. It is expected that, by 2012, all the planned improvements in EPS system would save about 18 million t CO2eq. According to Mr. Carlson's prediction, the size of CDM potential in Serbia would be of 50-80 million US $ per year, for each of the next ten years. The yields would primarily be oriented towards currently state-owned energy and DH sectors (Carlson, 2003).

applicable in Serbia. ***It would be useful to try to realize it jointly with the Energy Efficiency Agency.***

IX ***Jointly with the Ministry of Agriculture a set of the climate protection measures in agriculture should be set up.*** Among them are: cut of the nitrous fertilizer subsidies, and mandatory introduction of methane collectors in big animal farms and organic waste landfills.

X ***Jointly with the Ministry of Finance it would be useful to explore emission trading and the World Bank Carbon Fund potentials.***

5. Reference:

Baumert, K. , Petkova, E. and Barbu, D. (1999) *Capacity for Climate. Economies in Transition After Kyoto.* World Resource Institute, June 1999, Washington D.C.

Dacic, M. (2003) Personal communication with Mr. Milan Dacic, Deputy Director of the Hydro-meteorological Institute, Republic of Serbia, July 7.

IEA (2002) Databases: *Energy Balances Non-OECD Countries 2002 ed. ; Energy Balances of OECD Countries 2003 ed. ; Energy Statistics of OECD Countries 2003 ed. ; Energy Statistics Non-OEDC Countries 2002 ed. ; CO2 Emissions from Fuel Combustion 2002 ed.* http://data.iea.org July 2003.

IPCC (2001a) *Climate Change 2001: synthesis report.* by R. Watson and the Core Writing Team, eds. Cambridge UK, Cambridge Univ. Press.

IPCC (2001b) *Third assessment report: report of working group I.* Cambridge UK, Cambridge Univ. Press.

IPCC (2001c) *Climate Change 2001, impacts, adaptation, vulnerability. Third assessment report: report of working group II.* Cambridge UK, Cambridge Univ. Press.

KP (1997) *The Kyoto Protocol to the United Nations Framework Convention on Climate Change*. http://unfccc.int/resource/docs/convkp/kpeng.pdf July 3, 2003

Maly, M. , Jakubes, J. , Jilkova, J. and Šnajdrova, E. (2002) *Review of Emission Trading Activities in CG 11 Countries.*Working version for CG11 Workshop in Zagreb, Croatia, 28-29 May 2002 . Enviros, Prague.

OECD (2001) *OECD Environmental Outlook to 2020.* Paris.

UFCCC-cc.info (2003)

Ürge-Vorsatz, D, Paizs, L. and Pesic, R. (2002) Energy and Sustainability in Central Europe ; A Decade of Transition in Review *Workshop on New Energy Policies in South-East Europe*, Zlatibor, October 1-2, 2002; UNDP and IEA. http://www.iea.org/workshop/zlatibor/pes21.pdf

Wisnievski, G. ed (2000) *Economic and legal aspects of renewable energy sources. Expert study for the Ministry of Environment.* EC BREC/IBMER Warsaw.

Zilahy, G. , Nemcsisne-Zsoka, A. , Szeszler, A. , Ürge-Vorsatz, D, Markadya, A. and Hunt, A. (2000) *The indirect costs and benefits of greenhouse gas limitations: Hungary Case Study.* Economics of Greenhouse Gas Limitations; Handbook Reports UNEP and Risø National Laboratory.