

The Kyoto Protocol: Can We Meet?

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Integration into the EU is one of strategic foreign policy goals of Croatia. Before accession, Croatia has to align with the EU policies and legislation. The European Commission in its Croatia 2007 Progress report identified ratification of the Kyoto Protocol as progress regarding environmental chapter of accession negotiations. By ratifying the Kyoto Protocol in May 2007 Croatia pledged to reduce greenhouse gases by 5% in the first commitment period, 2008-2012, from the amount released into the atmosphere in 1990.

Based on international, European and domestic tools for meeting the Kyoto Protocol and the Croatian draft Strategy and Action plan for mitigation of climate change we analyse feasibility of meeting the Kyoto target. Importance to align with the Kyoto target is finally evaluated from the perspective of Croatia's efforts to join the EU.

Key words: Kyoto Protocol, Environment, European Union, Croatia, accession process

1. Introduction

Croatia signed the Kyoto Protocol in 1999 and ratified it in May 2007. Ratification followed decision of the Conference of the Parties to the UN Framework Convention of Climate Change (UNFCCC) to allow Croatia additional 3.5 % Mt CO₂ eq to level of 1990 GHG emissions.

The decision was result of negotiations launched in 2001, on the basis of Croatia's request for recognition of special circumstances pursuant to the Article 4.6 of the Convention. Croatia asked for increase of base year emissions for 4.46 Mt CO₂ eq (i.e. 14%). The special circumstances regarding emissions from Croatian power plants situated outside its territory (Bosnia-Herzegovina and Serbia). Emissions from these sources are not contained in the greenhouse gas inventory of Croatia for 2001, and they were owned and used by Croatian power system.

Preparations for the implementation of the Kyoto Protocol are under way, but according to the projections of the Ministry for Environmental Pro-

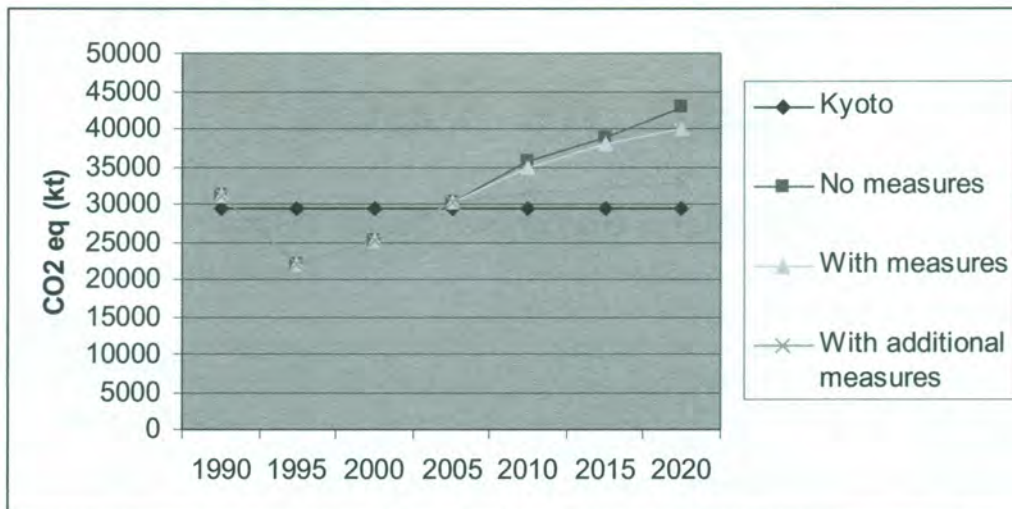
tection, Physical Planning and Construction submitted to the UNFCCC, Croatia is likely to fail to meet its Kyoto Protocol target (Figure 1).

The current level of emission is the result of the war and economic restructuring. During the war period, 1991-1994, economic activities and energy consumption decreased significantly (31%), which was directly linked with phasing out of certain energy intensive industries (e.g. blast furnaces, primary aluminium production and coke plant). Since 1995 emissions have started to grow at an average rate of 3.3% per year. If such trend continues („business as usual scenario”), the assigned amount will be exceeded in 2008.

According to the „with measures” scenario, the Kyoto target will be exceeded in 2010. The implementation of additional measures, which is estimated to be hardly feasible, is necessary to meet the Kyoto obligations. According to the scenario with additional measures, emissions will reach 30,864 Mt of CO₂ eq by 2012, i.e. be under the Kyoto limits (the Ministry for Environmental Protection, Physical Planning and Construction, 2006, p. 3).

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Figure 1. Projections of greenhouse gas emissions in Croatia, 1990-2010



Source: based on Ministry for Environmental Protection, Physical Planning and Construction, 2006, p.73.

The current emission levels and trends, coupled with institutional weaknesses, need for new implementing measures and limited timeframe make meeting the Kyoto Protocol very challenging. Whether meeting this challenge is feasible was the key question in the parliamentary debate on the Kyoto Protocol ratification. It was supported by clubs of all parliamentary parties, but the opposition parties expressed concerns whether the implementing measures will be efficient and sufficient (cf. Boromisa, 2007).

2. The Role of the EU

The European Council of June 2004 granted the status of candidate country to Croatia. Accession negotiations were opened in October 2005. The negotiating framework points out the importance of a high level of environmental protection.

Croatia will have to align with more *acquis* in the pre-accession phase than the countries that joined the EU in 2004 and 2007. Continual alignment is a necessity for member states as well, but the experience of the last round of the enlargement shows that would be members comply with the rules more strictly than member states. For a candidate country, pressure of negotiations is a much more powerful instrument for the implementation of the reform than peer review within the EU (Boromisa, 2005). Next, the EU introduced new tool, benchmark. Officially, purpose of the benchmark is to further improve the quality of the negotiations, by providing incentives for the candidate countries to undertake necessary reforms at an early stage. There are two types of benchmarks: for opening and for closing negotiations on each chapter. Opening benchmarks concern key

preparatory steps for future alignment with the EU's legal order, such as strategies or action plans. Closing benchmarks primarily concern legislative measures, administrative or judicial bodies, and a track record of implementation of EU laws and standards. This means that despite the fact that formal membership criteria are the same, the European Union is in the position to set forth conditions (benchmarks), for each individual of the 35 negotiation chapters (Stubenrauch, 2007).¹ Only after the benchmarks have been fulfilled the respective chapter is opened (or closed).

The European Commission (EC) proposes the benchmarks on the basis of the screening reports. Screening is the process of the joint analysis of the *acquis communautaire* on each individual negotiation chapter between the EC and the candidate country.

Screening of the environmental chapter was completed in May 2006. The screening report, published in February 2007 summarises the information provided by Croatia and the discussion at the screening meeting. Environmental chapter is recognised as very difficult, primarily due to the legislation that needs to be changed.

An opening benchmark for environmental chapter was defined: before opening negotiations Croatia has to improve administrative capacity at national, regional and local level and develop action plan identifying the timeframe and resources (human and financial) to implement and enforce the *acquis*.

According to the available estimates, Croatia will be able to meet EU standards by 2015, provided that 11 billion euro is invested in environmental protection (Mladineo, 2006).

In order to achieve the conditions for the conservation of environment in Croatia, as well as for

application of EU directives in the field of environment, it will be necessary to significantly invest in the infrastructure of waste, waste waters and air protection. According to the National Environmental Action Plan – NEAP (2002), the total costs for environmental infrastructure projects are estimated at about 6,000 billion Euro for the 10-year program.

Sectoral strategic documents and plans for air, waste and waters have been elaborated since 2002 which define necessary investments and funds for environmental protection. In comparison to NEAP, these documents cover a longer period of investment (ca 20-25 years) for individual segments. The draft Air Sector Implementation Plan² covers an 11-year period from 2006-2016. The estimated capital investment costs of 1,799 billion Euro include the cost of improving the ambient air quality monitoring; of bringing non-compliant large combustion plants into compliance with the directives; of controlling VOC emissions from petrol storage and distribution installations; of controlling VOC emissions from solvent-using applications; and modifications to refineries.

The Waste Management Plan (MEPPPC, 2007) covers an eight-year period 2007-2015. The estimated capital investment costs of 350-400 million Euro cover the cost of upgrading/establishing landfills for the disposal of municipal solid waste and non-hazardous industrial waste, collection and recycling facilities for particular waste streams, and for the collection, storage and disposal of hazardous waste, including incineration. According to the Water Management Strategy (draft) the total capital expenditure in the water sector (2005-2020) is estimated to be 3,700 billion Euro (Tišma, Ozimec, 2007).

Other research and evaluation of expenses related to environmental protection in Croatia show somewhat different amounts necessary for adjustment to EU legislation (EIZ, 2007). Therefore, some analysts think that total expenses related to air and climate changes in the 2005-2015 period will amount to 1,336 billion Euro. These expenses do not include the implementation of IPPC directive (Integrated Pollution Prevention Control) and operational and administrative expenses related to air sector (ca. 130 million Euro). Total expenses for waste management in the same period have been evaluated to 800 million Euro, while for the development of water management in the 2008-2023 period the expenses have been evaluated to 3,315 billion Euro.

The Government's target date for the accession is 2009. The enlargement Commissioner Olli Rehn recently mentioned 2009 as feasible for closing the negotiations, provided Croatia continues with reforms. This leads to conclusion that Croatia will

need transitional periods in environmental chapter, provided that accession negotiations proceed as planned.

General attitude of the EU is that transition periods should be limited in time and scope. In the fifth round of the enlargement the EU has underlined from the very beginning of the negotiations that transitional measures will not be granted on:

- transposition (as opposed to implementation);
- framework legislation (air, waste, water and waste water, environmental impact assessment, strategic environmental assessment, access to information and public participation in environmental decision making);
- nature protection (habitat, birds);
- essentials of the internal market (all product-related legislation);
- new installations.

In the fifth round of the enlargement all candidate countries requested transitional measures and technical adaptations in the area of environment. Several of these requests have been withdrawn as a result of negotiation, clarification and substantial additional efforts by the candidate countries. The EU in its turn has considered transitional measures in areas where substantial adaptation of infrastructure is required or where substantial investments need to be spread over time. Finally, limited transitional periods have been granted in relation to urban waste water treatment, discharge of dangerous substances into the aquatic environment, packaging waste, landfill of waste, shipment of waste, integrated pollution prevention and control, drinking water, large combustion plants, incineration of hazardous waste, volatile organic compounds (VOC) emissions from storage and distribution of petrol, VOC emissions due to the use of organic solvents, sulphur content of certain liquid fuels and ionising radiation in relation to medical exposure.

The experience of the new member states might be useful for Croatia during negotiations, but it should be noted that most of the agreed transition periods expire by the end of 2009, i.e. asking for the same treatment in the same areas will become obsolete by the time Croatia enters the final stage of negotiations. Only in a few cases can the same arguments be used on the basis of previous enlargement, such as Latvian (end 2015) and Estonian (end 2014) transition periods for implementation of Directive 98/83/EC, regarding the quality of water intended for human consumption.

The implementation of the Protocol European Commission is identified as priority in 2007 Acces-

sion Partnership. Priorities contained in the Accession Partnership are, by definition, considered to be both realistic and attainable. The 2008-2010 period will be of key importance for opening and closing of all chapters of the EU accession negotiations, including environment. Efficient implementation is necessary since it demonstrates readiness for alignment with the EU policies. Considerable progress towards the Kyoto targets has to be achieved. It is not possible to require transitional measures regarding the Kyoto Protocol since it is an international agreement. Given the conclusions of the European Council of March 2007, which sets 20% reduction of GHG by 2020 as unilateral goal, the Kyoto Protocol can be regarded as benchmark in alignment with EU climate change goals.

In this respect, insufficient progress towards the Kyoto target in the next two years can be used as formal argument for delaying Croatia's accession. Consequently, the implementation of the Kyoto Protocol is a must from the perspective of the accession to the EU.

3. Tools for Meeting the Kyoto Target

Responding to climate change requires clear and decisive action at international and national level, including actions on state, corporate and individual levels. Here we present the main international, regional (EU) and national tools designed for mitigation of climate change. Based on available tools in the short run we analyse feasibility of fulfilling Croatia's commitments until 2012.

3.1. International Tools

Flexibility mechanisms or the Kyoto mechanisms are international economic instruments under the Kyoto Protocol. As a group of instruments, the four mechanisms: joint implementation (JI), clean development mechanism (CDM), bubble policy and international emissions trading (IET) provide for transfers of emission rights or reduction credits between nations. The principle supporting these mechanisms is found in the UNFCCC, which called for cost-efficient policies to solve a global problem.

Joint implementation (JI) and the clean development mechanism (CDM) are the two project-based mechanisms of the Kyoto Protocol that may be used by Annex I Parties (industrialised countries with a greenhouse gas reduction commitment) to fulfil their Kyoto targets.³

Under JI, an Annex I Party (with a commitment inscribed in Annex B⁴ of the Kyoto Protocol)

may implement an emission-reducing project or a project that enhances removals by sinks in the territory of another Annex I Party (with a commitment inscribed in Annex B of the Kyoto Protocol) and count the resulting emission reduction units (ERUs) towards meeting its own Kyoto target. An Annex I Party may also authorize legal entities to participate in JI projects.

Clean development mechanism (CDM) allows Annex I countries to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries.

International Emissions Trading and the bubble policy rely not on the transfer of reduction „credits“ but rather on the trading of emission „rights“ or allowances.

IET allow for the transfer or acquisition of parts of assigned amounts. The launch of international emission trading is scheduled for 2008. IET exclusively facilitates commitment fulfilment by the parties to the Kyoto Protocol, i.e. the countries. However, it is at the discretion of the participating countries to authorise enterprises to participate in the trading. Thereby it is significant that the country, and not the enterprise, remains responsible for meeting the reduction commitment.

Bubble is a form of flexibility mechanisms in which differentiated commitments are taken between a group of countries with the goal of achieving a common reduction goal. During the first commitment period (2008-2012) the „bubble policy“ will only be implemented by fifteen EU member states („old member states“) in achieving an overall reduction of 8 percent.

For participation in flexible mechanisms there are several requirements, concerning (i) ratification the Kyoto protocol, (ii) assigned amount, (iii) national system for the estimation of anthropogenic emissions by sources and anthropogenic removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, (iv) national registry, (v) submission of annual inventory, including the national inventory report and the common reporting format and (vi) supplementary information on assigned amount and additions to, and subtractions from assigned amount. In addition, flexibility instruments can be used provided that UNFCCC Annex I party that has ratified the Protocol can prove that its use of the mechanisms is „supplemental to domestic action“, which must constitute „a significant element“ of the efforts in meeting its commitments.

Croatia has ratified the Kyoto Protocol, but does not meet yet all the requirements mentioned above. It is planned that in 2008 national registry

will be functional, and that the initial report for final definition of the assigned amount will be submitted to the UNFCCC. By doing so, preconditions for meeting requirements concerning the assigned amount and national registry will be met. Infrastructure for the Kyoto mechanisms should be in place in 2009 (MEPPPC 2007, p. 83). As it takes roughly 18 months to approve the projects that are planned to be implemented under flexible instruments, the implementation of this schedule would enable participation in the Kyoto mechanisms in 2011. This is later than the planned accession to the EU. Consequently, significant progress should be achieved in creating preconditions for later inclusion in mechanisms, and concrete actions for reduction of GHG emissions should be implemented without relying on flexible instruments.

3.2. European Tools

Ever since the United States announced their decision not to ratify the Kyoto Protocol, the European Union took over the role of the alleged international climate leader (Streck, 2006). The Community has developed a broad suite of policies and measures to meet the Kyoto target.

The EU-15 made use of bubble policy under Article 4 of the Kyoto Protocol, which allows groups of countries to accept a common emission target and redistribute that target internally. Per decision of EU Environment Council 16th June 1998 single -8% EU Kyoto Protocol target for greenhouse emissions was established. Burden Sharing Agreement allocates target between Member States in the range from -28% (Luxembourg) to +27% (Portugal).

In March 2000 the Commission launched the European Climate Change Programme (ECCP). The ECCP has led to the adoption of a wide range of new policies and measures. Among these is EU Emissions Trading Scheme, launched on 1 January 2005. EU ETS is the cornerstone of EU efforts to reduce emissions cost-effectively and the largest multi-country, multi-sector GHG emission trading scheme in the world. Now all 27 EU member countries are participating in it. In the Phase I (2005-2007), the EU ETS includes some 12,000 installations, representing approximately 45% of the EU CO₂ emissions, covering energy activities (combustion installations with a rated thermal input exceeding 20 MW, mineral oil refineries, coke ovens), production and processing of ferrous metals, mineral industry (cement clinker, glass and ceramic bricks) and pulp, paper and board activities. In Phase II (2008-2013) countries of the European Economic Area, Norway, Iceland and Liechtenstein will also participate in the

EU ETS. Linking the EU ETS with Norway, Iceland and Liechtenstein is taking place through the incorporation of the EU ETS Directive (Directive 2003/87/EC as amended) into the European Economic Area agreement, based on the Decision of the European Economic Area Joint Committee from October 2007 (European Commission, 2007; 3).

Other EU policies and measures include the adoption of a directive promoting combined heat and power. An indicative target for the share of renewable in generation of power is 22%. European instruments also include voluntary agreement between the European Commission and the car industry on reducing CO₂ emissions from new passenger cars.

Croatia cannot join the „bubble” agreement for the first commitment period of the Kyoto Protocol (cf. **Amenders, Michaela, 2003**). The alignment with the ECCP is developing in the framework of accession negotiations. By transposition of the EU legislation prerequisites for inclusion into the European trading scheme will be created. It is planned that transposition of the climate-related legislation into Croatian legal system and merger of Croatian ETS with EU ETS will be finalised in 2009. As a result, Croatia could benefit from using European tools once it becomes an EU member. In the pre-accession phase, prerequisites for using European tools should be made. As the timeframe is very tight, any delay could seriously jeopardise planned timetable for finalisation of accession negotiations. Such delays could also postpone the use of European tools that might be helpful for meeting the Kyoto goals.

However, it should be noted that earlier analyses show that JI and CDM are likely to be more effective, efficient and politically acceptable than the IET in implementation of the Kyoto Protocol (Woredman, 2000).

3.3. Domestic Tools

Domestic policies and measures are regulatory, negotiated or economic instruments which have the effect of reducing emissions (e.g. energy-efficiency legislation, energy/carbon taxes). They should constitute a significant element of the efforts in meeting the Kyoto Protocol.

In Croatia a number of policies that have significant effect on the climate change issues were outlined within „Strategic Development Framework 2006-2013” (Government, 2006). The main strategic goal in the mentioned period is growth and employment in a competitive market economy acting within a European welfare state of the 21st century. Strategic development framework identifies ten strategic areas, including environmental protection, in

which simultaneous and harmonised action is needed to achieve main strategic goal.

Identifying environment as a tool for meeting main strategic goal can be regarded as the first step towards integration of different policy goals. Environmental concerns are not yet implemented in all relevant policies (cf. European Commission, 2007).

The National Strategy for the Implementation of the UNFCCC and the Kyoto Protocol together with the Action Plan is the key document that should identify goals, means and measures for meeting the Kyoto target.

The Draft National Implementation Strategy presented in June 2007 contains short-, and long-term objectives and targets related to implementation of the UNFCCC and the Kyoto Protocol. Action Plan stipulates policy instruments, mitigation measures, organizational scheme, duties/responsibilities, expenditures, financing options and timetable for implementation of the Strategy.

The main goal of the Strategy is to decrease emissions for at least 5% compared to the base year without jeopardising economic growth, competitiveness, standard of living and employment.

In the short run (i.e. in the first commitment period, 2008-2012) individual goals include:

1. Capacity building for implementation of the Strategy and the Kyoto Protocol
2. Speeding up of transposition of the EU *acquis* in the area of climate change
3. Integration of climate change policies into sectoral strategies
4. Active participation of Republic of Croatia in defining commitments in the post-2012 period and
5. Establishment of research and development programme for climate changes

(MEPPPC, 2007, p. 5)

These goals should be achieved by implementing measures belonging to five broad categories: (i) increased use of renewables, (ii) improved energy efficiency, (iii) use of low carbon fuels, natural gas; (iv) measures in industrial process, provided that they are cost-effective and (v) measures in waste management.

The main national policies and good practices that might have significant impact on meeting the Kyoto goals are focused on four sectors: energy, industrial development, transport and agriculture.

Energy sector is the most important IPCC sector in Croatia. It accounts for 74.9% of the total national emission of GHG. In the period 2000-2004 average annual growth of CO₂ emission in Croatia was faster (3.8% per year) than in the economy as a

whole (3.7% per year). Next, the energy sector has the greatest potential for reduction of greenhouse gases. The estimated potential for reduction of CO₂ in the energy sector for scenario with measures is 869.4 kt of CO₂ eq by 2010 and 2168.2 by 2020. Comparable potential for reduction in other sectors (namely industrial processes, agriculture and waste management) does not exist. The implementation of additional measures in energy sectors increases the potential for emission reduction twice, to 5586.5 kt CO₂ eq in 2020.

Further, the energy sector is the only one that has a strategy document to regulate the measures for mitigation of effects of climate change. Improved energy efficiency and utilization of renewable sources of energy are among measures foreseen by energy strategy. In addition, international obligations in energy sector, emerging form membership in the Energy Community and the Energy Charter Treaty might help mitigate climate change and promote sustainable development.

By adhering to the Energy Community in 2005 Croatia committed to implement the EU energy *acquis*, including market-based mechanisms. This should lead to removal of subsidies and other market imperfections in energy sector and its environmentally damaging activities which might help mitigate climate change.⁵⁵ The Kyoto Protocol provides an indicative list of policies and measures that might help mitigate climate change and promote sustainable development. The list includes:

- Enhancing energy efficiency;
- Protecting and enhancing greenhouse gas sinks;
- Promoting sustainable agriculture;
- Promoting renewable energy, carbon sequestration and other environmentally-sound technologies;
- Removing subsidies and other market imperfections for environmentally-damaging activities;
- Encouraging reforms in relevant sectors to promote emission reductions;
- Tackling transport sector emissions; and,

Next, participation in the Energy Community provides anchorage with the EU which ensures implementation of price reform leading to realistic and market-related prices of energy and development of energy market. The anchorage with the EU also reduces risks of sudden pricing policy change. Price signals are important for investment decisions and also relate to energy efficiency, renewable sources, choice of energy-generating products and application of state-of-the-art protection technologies.

Similarly, the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects requires formulation of clear policy aims for improving energy efficiency and reducing the energy cycle's negative environmental impact.

In addition to the measures necessary to comply with international obligations, domestic policy instruments are also being developed, e.g. Environmental Protection and Energy Efficiency Fund, established in 2003, provides funds for implementation of policies for mitigation of climate change. By collection emission and pollution fees (including recently adopted CO₂ fee) it contributes to the establishment of fair market relations, and to the implementation of the polluter pay principle.

The adopted measures provide signals about policy direction, but they are still fragmented. There are several sources of uncertainty and risk. Faced with uncertainty, decision-makers will generally prefer to keep their options open, and this holds true for investment decision makers facing uncertain changes in the regulatory conditions in which they operate. Uncertainty could lead to the postponing of investment decisions in areas that are most affected with climate policy decisions (Blyth, 2007).

Consequently, measures that can help meeting the Kyoto objective will be delayed thus making meeting the Kyoto Protocol even more challenging. Given a limited timeframe for achieving the Kyoto target, the necessity for significant progress in the next two years in order to be able to use flexibility mechanisms, and the fact that legal and institutional capacity are being built, improved energy efficiency should be a priority for climate change.

Public opinion, education and promotion of best practices might provide incentives for individual decisions (demand side) for investment in lower emitting technologies. An investment decision of companies and citizens in liberalised market presents a delicate problem of incentive setting and risk allocation. For instance, CO₂ fee being implemented in Croatia does not provide sufficient incentive for investment in low carbon fuels/technologies and in a limited number of cases creates opposite incentives (Boromisa, Tišma, Farkaš, 2007).

In sectors and companies with high impact on emission level, such as those that are likely to be able to participate in the EU ETS, the Kyoto Protocol is often regarded as threat to economy in the form of energy price increases, job losses and an overall decline in standard. On the other hand, there is potential for reduction of emission intensity by using new technologies and improving energy efficiency.

On the national level, regulatory environment should create framework for minimising risk of price increase, job losses and decline in standard, and provide incentives for reduction of GHG emissions, investments in low carbon technology and improving energy efficiency. On the company level, measures that minimise uncertainties about the costs and benefits of mitigation measures should be implemented. These should help in making more informed decisions and contribute to the overall goal of emission reduction.

4. Croatian Challenges and Opportunities for Meeting the Kyoto Target

In the last few years within its accession process Croatia undertook many activities in aligning with the EU environmental legislation as an exceptionally demanding part of the *acquis*. A lot has been done, although many challenges still need to be solved. Environmental problems in Croatia have been recognised in a relatively early stage, the country undertook activities to solve those problems by relying in a significant part on its own human and financial resources. The current situation in the environmental sector in Croatia can be described as follows:

- * The country has a relatively clean environment.
- * Environmental regulation is almost developed (according to the EU *acquis*).
- * Relevant strategic documents (plans and programmes) are developed or being developed.
- * The financial support of the EU and international institutions significantly contributes to institution building, capacity building, introduction of new knowledge and skills for the implementation of environmental *acquis*, and demanding infrastructural constructions related to waste and waste-water management.
- * There is a significant growth of public interest and active participation of the public in environmental decision-making and there is an increase in activities of environmental NGOs.
- * Institutional capacity for environmental protection at local and regional level is very low.
- * Institutional cooperation in dealing with individual segments of environmental protection is not developed enough. However, the cooperation will become more advanced when nature protection activities and water management become the scope of the Ministry of Environmental Protection, Physical Planning and Construction.

The Kyoto Protocol is important part of the EU horizontal environmental legislation and as such among priorities. In the 2008-2010 period, Croatia should start to implement measures to meet the Kyoto target in order to finalise environmental chapter of the EU negotiation. Internal EU issues, such as reform treaty, are important for finalising negotiations. Eventual failure to reach an agreement and delays in Croatia's membership is likely to slow down Croatia's progress towards the Kyoto goals.

The measures necessary for the Kyoto Protocol implementation in Croatia range from individual choices to legal obligations. Legislative measures that are being prepared should create incentives to invest in low carbon technologies and energy efficiency. Administrative structures should provide framework and support for inclusion in flexible mechanisms and thus contribute to cost-effectiveness of measures. Delays in legislative process coupled with administrative weakness could impede participation in flexible mechanisms in the first commitment period. As a result, significant progress that should enable accession negotiations on environmental chapter has to be achieved by implementation of domestic measures, without flexible mechanisms.

Previous analyses showed (e.g. Loeschel, Mraz) that the carbon abatement policies have a direct impact on the overall comparative advantage and the international competitiveness of industries. The strict domestic abatement policy implies the loss of competitiveness in energy intensive industry with negative implications on production and employment. In Croatia, the reform of the energy sector, regarding liberalisation of market including price reform is under way. It is expected that prices will rise. Further increase of energy prices, caused by implementation of domestic abatement policies (e.g. CO₂/energy fee) is likely to have important social dimension. In this respect the climate change policy poses a great threat and requires cohering action by government, business and society.

Provided that enterprises and workers anticipate and adapt, socio-economic changes which may arise out of the implementation of the Kyoto Protocol can be managed. The implementation of the environmental management system is one of the measures that might be helpful in this respect. The environmental management system might be helpful for setting internal and meeting external objectives. Potential energy savings from energy efficiency measures can be estimated based on energy audit that could also assess and support GHG emissions reduction and emissions trading at company level. This requires consistent, transparent and credible GHG data enabling decision-makers to identify the most

cost-effective measures. Modernisation and implementation of the best available techniques are likely to bring some savings, but to estimate cost-effectiveness of individual projects, precise data are needed. Financial constraints are not the only problem. There is a need to analyse relationship between implementation of GHG mitigation measures and sustainable development. Options offered by the UNFCCC regarding environmentally sound technologies, transfer of knowledge and financing via various mechanisms, such as Global Environment Facility (GEF) provide an opportunity for economic and technological innovation and modernisation. Similarly to other new member states, economic growth in Croatia is expected to be related to the increase of GHG. Research programmes on issues relating to climate change, which are identified as aims of the Croatian Strategy for Implementation of the UNFCCC and the Kyoto Protocol should help balancing economic growth and climate change policies. Energy efficiency can be addressed at relatively low costs, but potential for energy efficiency increase has to be examined in more details.

Starting the implementation of the Kyoto Protocol is an important but insufficient first step. Meeting the reduction target will be essential for negotiations in the second commitment period on the EU level and internationally. As implementation of policies and measures tends to absorb most existing resources, Croatia lacks the capacity to take an active part in international negotiations on post 2012 issues. Passive approach towards climate policy, i.e. waiting for guidance from the Commission on targets, policies and measures, that does not take into account the specific needs in the country should be replaced with more active approach, including, for instance regional alliances (e.g. with other candidate countries or with South Eastern European countries) that could jointly develop negotiation strategy and implementation of common policies. Such approach is likely to improve Croatia's negotiating position in the post 2012 burden sharing agreement. It is expected that new member states and candidates will be confronted with individual and specific reduction targets under a future burden sharing agreement while not being able to react adequately (Ecologic, 2007, p. 7). The implementation of the Kyoto Protocol's commitments will be an extremely difficult task for Croatia, perhaps even beyond its capacities, so harmonising the negotiation strategy with other candidates and new member states could improve our negotiating position regarding unilateral EU target (20% by 2020) as well as regarding international obligations. ■

NOTES

1 The structure of opening benchmark is the same as that of transitional arrangements in the last round of the enlargement. E.g. they had to include detailed legally binding intermediate targets and financial strategies.

2 Source: CARDS 2002, Strategy for EU Environmental Law Approximation, Croatia, Draft Transposition Strategy and Plan.

3 Annex I to the UNFCCC contains a list of industrialized coun-

try Parties that have special commitments to limit their emissions of greenhouse gases under the Convention.

4 Annex B to the Kyoto Protocol lists 39 countries that have taken on quantified emission limitation and reduction commitments under the Protocol. Controlling methane emissions through recovery and use in waste management. (UNFCCC; 2007)

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