

STRATEGIES AND POLICIES OF PARTIES AND SIGNATORIES TO THE CONVENTION
FOR THE ABATEMENT OF AIR POLLUTION

2010 GENERAL POLICY QUESTIONS

Answers CROATIA

I. INSTITUTIONAL, REGULATORY AND STRATEGIC FRAMEWORK

1. Question 1: please describe the division of responsibility within your country for measures to combat air pollution (i.e. the roles of national, provincial, and state authorities).

STATE LEVEL

Ministry for Environmental Protection, Physical Planning and Construction (MEPPPC)

MEPPPC performs administrative and other tasks regarding general environmental protection policy in fulfilling requirements for sustainable development, tasks of protection of environment and its components including inspection control and coordination of other competent public administration bodies, state administrative organisations and legal persons with public authorities for environmental protection issues.

In January 2009, the Government of the Republic of Croatia adopted the Regulation Amending the Regulation on Internal Organization of the Ministry of Environmental Protection, Physical Planning and Construction (OG 12/09).

Regarding the MEPPPC directorates which are directly involved in environmental protection activities, the new organisational structure has brought the following changes: four new directorates and one Independent service have been established instead of the former Environmental Management Directorate and the Directorate for Strategic and Integration Processes in Environmental Protection. The new directorates are:

- Directorate for Atmosphere and Waste Management
- Directorate for Environmental Assessment and Industrial Pollution
- Directorate for the European Union
- Directorate for International Cooperation and Sustainable Development
- Independent Service for Coordination of Environmental Protection Activities, Environmental Protection Promotion and Alignment with EU Standards.

Pursuant to the new MEPPPC organisational structure, tasks related to air quality are performed within the Directorate for Atmosphere and Waste Management, Sector for Atmosphere, Sea and Soil, Department for Atmosphere and Soil Protection. Department for Atmosphere and Soil Protection has two sections related to air quality management; Section for Air Protection and Section for Air Pollution Prevention and Reduction Measures. According to the previous organisational structure the Sector for Atmosphere, Sea and Soil was situated within the former Directorate for Environmental Management.

The Section for Air Protection performs administrative and expert tasks regarding air quality protection and improvement, including: preparation of draft implementing regulations on pollutant limit values in ambience air, monitoring and analysis of the status of air quality at the national, regional and local level, preparation of background documents with regard to air pollution assessment, classification of the state territory into zones and agglomerations according to air pollution level, establishment and improvement of the state air quality monitoring network, adoption of the air quality measuring programme in the national network, coordination of operation of the national air quality monitoring network, expert cooperation in preparation of annual air quality reports, adoption and monitoring of implementation of measures for air pollution reduction in zones and agglomerations in which limit and tolerance levels are exceeded. The Section also prepares permits to legal persons for performing air quality monitoring activities.

At the MEPPPC website (<http://zrak.mzopu.hr>), and at the website of the State Air Quality Monitoring Network, hourly and daily measurement data are available from national air quality monitoring stations in the Republic of Croatia.

Pursuant to the Act on Amendments to the Air Protection Act (OG 60/08) of May 2008, from 2010 onwards tasks of air quality monitoring at stations within the national air quality monitoring network, i.e., data collection, verification of measurement and data quality, processing and presentation of results, data submission into the air protection information system, maintenance and servicing of stations and equipment, and construction of new stations within the national network will be performed by the Meteorological and Hydrological Service. Supervision of air quality monitoring tasks at stations in the national air quality monitoring network is carried out by MEPPPC.

The Section for Air Pollution Prevention and Reduction Measures performs administrative and expert tasks regarding preparation of implementing regulations on limit values of emissions from stationary sources into the air and product quality. It prepares draft planning documents for air pollution reduction and monitors implementation of measures for prevention and reduction of pollutant emissions from stationary sources by sectors and of measures for reduction of harmful effects of acidification, eutrophication and ground-level ozone. The Section prepares proposals of national action plans, programmes and reports to fulfil contractual obligations under international treaties and agreements. The Section performs administrative and expert tasks of determining product quality and its monitoring on the domestic market (fuels, biofuels, paints and varnishes, etc.) to fulfil obligations in the field of air protection, security of supply of environmentally friendly energy, and promotion of cleaner fuels and renewable sources use in transport. The Section prepares permits to legal persons for performing activities of monitoring pollutant emissions from stationary sources and prepares approvals for programmes for the reduction of VOC emissions into the air from stationary sources. The Section keeps a register of installations using volatile organic compounds (REGVOC) publicised at MEPPPC website (www.mzopu.hr).

In the performance of above tasks the Department cooperates with central state administration bodies, competent administrative departments in local and regional self-government units, economic entities and associations, legal persons with public authorities, non-governmental organisations, Croatian Environment Agency, Croatian Accreditation Agency, and Environmental Protection and Energy Efficiency Fund. The Section also ensures exchange of data on air quality and emissions into the air with competent bodies and organisations within the European Union as well as with international organisations and organisations of other states in line with ratified international treaties.

The environmental protection inspection monitors the implementation of the Air Protection Act and of the implementing regulations adopted on the basis of that Act.

The Croatian Environment Agency (CEA)

CEA establishes, keeps and maintains the air quality information system which, pursuant to the Environmental Protection Act (OG 110/07), forms an integral part of the environmental information system and which contains air quality data from the state and local network, data on emission from pollution sources, data on emissions from sources having an impact on climate change, data on ozone depleting substances, data on product quality, measures and programmes for air quality protection and improvement, measures and programmes for climate change protection, measures and programmes for ozone layer protection, data on critical level exceedance and measures for protection of people and the environment in such circumstances, data on legal persons performing activities air quality and emission monitoring, data from the environmental pollution register, data on carried out inspectional supervision, data on established misdemeanours, and other data relevant for air quality. Central state administration bodies and bodies of local and regional self-government units, legal persons with public authorities have the obligation to ensure, in a timely manner and free of charge, data under their competence, as well as other data necessary for keeping the air quality information system and for the preparation of the Plan, Programme and Report.

Data from the air protection information system are publicly available at CEA website (www.azo.hr).

Environmental Protection and Energy Efficiency Fund (EPEEF)

EPEEF is an extra-budgetary legal person, has been established to secure the requisite supplementary

funds to finance the preparation, development and implementation of projects, programmes and similar supporting activities in the field of environmental protection, air protection, energy efficiency and use of renewable energy sources. The Fund manages and has at its disposal resources raised from various charges; for example, in the field of atmosphere protection, from the “polluter pays” charge for carbon dioxide, sulphur dioxide and nitrogen oxide emissions. The Fund uses the moneys thus raised to co-finance, among others, programmes and projects in the field of preservation, sustainable use, protection and improvement of the environment and in the field of energy efficiency and use of renewable sources of energy.

LOCAL LEVEL

County assemblies or the assembly of the City of Zagreb adopt their Air Quality Protection and Improvement Programme as a constituent part of the environmental protection programme for the respective county or the City of Zagreb.

City or municipal councils adopt their Air Quality Protection and Improvement Programme for the respective city or municipality territory in which the air pollution level exceeds the tolerance value (TV).

Reports are prepared on programme implementation. County administrative departments and the administrative body of the City of Zagreb, or city and municipality administrative departments competent for environmental protection are responsible for the preparation of reports.

The county, the City of Zagreb, cities and municipalities establish networks for continuous air quality monitoring in their territory (local networks), if the pollution levels exceed the limit values (GV), while the County administrative department and the administrative body of the City of Zagreb or city competent for environmental protection performs coordination of local network activities.

Air quality data from local networks is publicised once a year at the respective local and regional self-government unit website.

The Assembly of the City of Zagreb, and city or municipal councils adopt their Plans of air pollution reduction measures, if in a given area category II air quality is determined (exceeded LVs), and for category III air quality (exceeded TVs) the Assembly of the City of Zagreb, and city or municipal councils pass a decision on the preparation of a remediation programme for the pollution source.

Also, it is an obligation of the City of Zagreb, city or municipality to order, in the case of measured/established critical air pollution level, implementation of special measures, including measures relating to mobile sources, human health protection as well as the manner of their implementation, and it is also their obligation to inform the public through the media of the occurrence of critical levels.

Pursuant to the Ordinance on the environmental pollution register (OG 35/08 of 28 March 2008) administrative bodies in counties or the City of Zagreb receive data on pollutants discharged into the air, water and/or sea and soil and transported outside of their place of origin in waste waters from the operators of the pollution source. Administrative bodies forward the data to Croatian Environment Agency CEA, which keeps the Environmental Pollution Register. The reported emissions into the air also include greenhouse gases.

2. Question 2: please provide details of your country's ambient air quality and deposition standards, programmes and policies by completing the table below.

Table 1: Question 2

	Standard (unit) /conditions¹	Status²/objectives³	Policy and programme/legislation (ref)
1. Ambient air quality standards			
Sulphur dioxide	350 $\mu\text{g m}^{-3}$ (1 hour) 125 $\mu\text{g m}^{-3}$ (24 hour) 50 $\mu\text{g m}^{-3}$ (1 year)	Limit value (LV), health protection	Regulation on limit values of pollutants in air (OG 133/05)
	20 $\mu\text{g m}^{-3}$ (calendar year and winter period)	LV, ecosystem	Regulation on limit values of pollutants in air (OG 133/05)
	500 $\mu\text{g m}^{-3}$ (three-hour moving average)	Alert threshold, health	Regulation on alert thresholds for pollutants in air (OG 133/05)
Nitrogen dioxide-nitrogen oxides	<u>NO₂</u> 200 $\mu\text{g m}^{-3}$ (1 hour) 80 $\mu\text{g m}^{-3}$ (24 hour) 40 $\mu\text{g m}^{-3}$ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
	<u>NO_x</u> 30 $\mu\text{g m}^{-3}$ (1 year)	LV, vegetation	Regulation on limit values of pollutants in air (OG 133/05)
	<u>NO₂</u> 400 $\mu\text{g m}^{-3}$ (three-hour moving average)	Alert threshold, health	Regulation on alert thresholds for pollutants in air (OG 133/05)
Ozone	120 $\mu\text{g/m}^3$ (maximum daily 8-hour mean)	target value, human health	Regulation on ozone in air (OG 133/05)
	110 $\mu\text{g/m}^3$ (daily mean (0-24h))	target value, health	Regulation on ozone in air (OG 133/05)
	18 000 $\mu\text{g/m}^3\cdot\text{h}$ averaged over five years (AOT40, calculated from 1 h values from May to July)	target value, protection of vegetation	Regulation on ozone in air (OG 133/05)
	120 $\mu\text{g/m}^3$ (maximum daily 8-hour mean within a calendar year)	long-term objectives, health	Regulation on ozone in air (OG 133/05)

	6.000 $\mu\text{g}/\text{m}^3 \cdot \text{h}$ (AOT40, calculated from 1 h values from May to July)	long-term objectives, vegetation	Regulation on ozone in air (OG 133/05)
	180 $\mu\text{g m}^{-3}$ (one-hour average)	information threshold	Regulation on alert thresholds for pollutants in air (OG 133/05)
	240 $\mu\text{g m}^{-3}$ (one-hour average)	alert threshold	Regulation on alert thresholds for pollutants in air (OG 133/05)
Particulate matter ₁₀	I stage till 2010 50 $\mu\text{g m}^{-3}$ (24 hours) 40 $\mu\text{g m}^{-3}$ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
	II stage – till 2015 20 $\mu\text{g m}^{-3}$ (1 year)		
Particulate matter _{2.5}	25 $\mu\text{g m}^{-3}$ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Total suspended particulates (TSP) As in TSP Pb in TSP Cd in TSP Ni in TSP Hg in TSP Tl in TSP	350 $\text{mg m}^{-2} \text{d}^{-1}$ 4 $\text{mg m}^{-2} \text{d}^{-1}$ 100 $\text{mg m}^{-2} \text{d}^{-1}$ 2 $\text{mg m}^{-2} \text{d}^{-1}$ 15 $\text{mg m}^{-2} \text{d}^{-1}$ 1 $\text{mg m}^{-2} \text{d}^{-1}$ 2 $\text{mg m}^{-2} \text{d}^{-1}$	LV, metal therein	Regulation on limit values of pollutants in air (OG 133/05)
Carbon monoxide	10 mg m^{-3} (maximum daily 8-hour mean)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Lead in PM10	0,5 $\mu\text{g m}^{-3}$ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Cadmium in PM10	5 ng m^{-3} (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Mercury	1 $\mu\text{g m}^{-3}$ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Arsenic in PM10	6 ng m^{-3} (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Nickel in PM10	20 ng m^{-3} (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Benzene	5 $\mu\text{g m}^{-3}$ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)

Benzo(a)pyrene	1 ng m ⁻³ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)
Dioxins/furans	No	-	NO
Others:			Regulation on limit values of pollutants in air (OG 133/05)
sumporovodik (H ₂ S),	7 µg m ⁻³ (1 hour) 5 µg m ⁻³ (24 hour) 2 µg m ⁻³ (1 year)	Limit value (LV), health protection	
merkaptani,	3 µg m ⁻³ (24 hour) 1 µg m ⁻³ (1 year)	Limit value (LV), health protection	
amonijak (NH ₃),	100 µg m ⁻³ (24 hour) 30 µg m ⁻³ (1 year)	Limit value (LV), health protection	
fenols,	100 µg m ⁻³ (24 hour) 50 µg m ⁻³ (1 year)	Limit value (LV), health protection	
klorovodik (HCl),	200 µg m ⁻³ (24 hour) 100 µg m ⁻³ (1 year)	Limit value (LV), health protection	
plinoviti fluoridi	3 µg m ⁻³ (24 hour) 1 µg m ⁻³ (1 year)	Limit value (LV), health protection	
2. Deposition standards	-	vegetation	
<i>Acidification and eutrophication:</i> – concentrations of inorganic components in precipitation and air: precipitation: SO ₄ ²⁻ , NO ₃ ⁻ , NH ₄ ⁺ , H ⁺ (pH), Na ⁺ , K ⁺ , Ca ⁺⁺ , Mg ⁺⁺ , Cl ⁻ , conductivity air: SO ₂ , NO ₂ , NH ₃ , HNO ₃ , SO ₄ ²⁻ , NO ₃ ⁻ , NH ₄ , Na ⁺ , K ⁺ , Ca ⁺⁺ , Mg ⁺⁺ – proportion of gaseous and particulate components in air: NH ₃ , HNO ₃ , NH ₃ /NH ₄ ,	-		Ordinance on monitoring air quality (OG 155/05, Anex 2)

HNO ₃ /NO ₃			
Heavy metals concentrations of heavy metals in precipitation and air: Cd, Pb (primary), Cu, Zn, As, Cr, Ni (secondary) – concentration of mercury in precipitation (Hg) and air (Hg[TGM])	-		Ordinance on monitoring air quality (OG 155/05, Anex 2)
<i>Photochemical oxidants:</i> – concentrations of ozone and photochemical oxidants: ozone (O ₃), NOX (NO, NO ₂), C ₂ -C ₇ , aldehydes and ketones <i>Transmission and deposition of heavy metals:</i> – concentrations of heavy metals in precipitation and air: Cd, Pb (primary), Cu, Zn, As, Cr, Ni (secondary) – concentration of mercury in precipitation (Hg) and air (Hg[TGM]) <i>Transmission and deposition of non-volatile organic compounds:</i> – concentration of non-volatile organic compounds in precipitation and air: PAU, PCB, HCB, chlordan, HCH, DDT/DDE <i>Transmission and</i>	-		Ordinance on monitoring air quality (OG 155/05, Anex 2)

<p><i>composition of particulate matter in air:</i></p> <ul style="list-style-type: none"> – mass and concentration of inorganic compounds in particulate matter PM₁₀ and PM_{2.5}: SO₄²⁻, NO₃⁻, NH₄⁺, Na⁺, K⁺, Ca²⁺, Mg²⁺, Cl⁻; – mineral dust concentration: Si – concentration of elemental (EC) and organic (OC) carbon, <p>Meteorology: <i>precipitation quantity, direction and speed of the wind, air temperature, relative air humidity, air pressure.</i></p>			
PAHs	-	health	Ordinance on monitoring air quality (OG 155/05, Anex 2)
Other: Smoke	50 µg m ⁻³ (1 year)	LV, health	Regulation on limit values of pollutants in air (OG 133/05)

¹What are the conditions for these standards (e.g. yearly values, 8-hour averages, etc.)?

²What is the status of the quality standards: limit values, target values, etc.?

³What is their aim (e.g. health, vegetation, etc.)?

3. question 3:

(a) Does your country apply a multi-pollutant management approach? If so, please describe this;

Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG No. 61/08) includes principles and criteria for determination of objectives and priorities, assessment of ambient air quality, objectives and policies regarding ambient air quality protection and improvement, including intersectoral policies, priority measures and activities and the implementation schedule along with the cost-benefit analysis.

The current legislative framework on air protection and the horizontal legislation prescribe a number of measures and instruments aiming at the quality protection and improvement, usually called existing measures and instruments. The present Plan has adopted the existing measures in full and used them as a foundation for additional measures found to be necessary for the accomplishment of set objectives.

In setting priorities relating to the accomplishment of objectives and implementation of measures the following criteria will be used for their evaluation: degree of harmfulness (threat, risk) of a pollutant to human health; time frame for accomplishment of objectives/implementation of measures; provision of the finance, other resources and expert documents and **synergy effect** - priority is given to measures that, apart from the reduction of priority pollutants, have a positive impact on the reduction of other pollutants and/or mitigation of effects on other environmental components (water, soil/waste).

The application of the above mentioned criteria means that priority will be given to objectives and measures that result in lower emissions of pollutants with the most harmful impacts on human health and at the same time have the shortest time of implementation, secured finance and necessary expert and administrative documents ready, and a positive effect on the reduction of other pollutants, including a reduced impact on waters and the soil.

(b) Are climate change and air pollution policies integrated in your country? Please give specific examples of programmes or technologies that address the co-benefits of reducing air pollution and greenhouse gases;

The **Air Protection Act** (OG178/04, 60/08) lays down general measures for air quality protection and improvement through:

- harmonization of physical planning documents and air quality protection and improvement programmes, i.e. through integrated planning;
- determination of limit values of emissions from stationary sources and limit values relating to the composition of specific products and/or other product quality features;
- application of other air protection measures laid down by an environmental impact assessment document or a permit issued under a special regulation for a certain development, designing, construction and use of air pollution sources;
- application of air protection measures laid down by a permit granted under a special regulation, unless the environmental impact assessment has been made obligatory for a certain development;
- setting emission allowances for specific pollutants including greenhouse gasses;
- promotion of the use of clean technologies and renewable energy sources;
- encouraging the introduction of energy efficiency measures.

In the Air quality protection and improvement plan of the Republic of Croatia for the period 2008-2011 (OG 61/08) general objectives of air quality protection, **including climate change**, and improvement in the Republic of Croatia in the period 2008-2011 are:

C1. Gradual reduction of air pollution aiming at the protection of human health, the environment and material assets

C2. Reduction of pollutant emissions with the aim to comply with obligations under international conventions and protocols (regional pollution, ozone layer protection and climate change mitigation)

C3. Promotion of the sustainable development policy through integration of air protection policy objectives into sectoral strategies and plans, especially as regards the greenhouse gas emissions reduction and the Kyoto Protocol

C4. Speeding up the transposition of EU *acquis communautaire* in all sectors

C5. Institutional and organizational capacity building for implementation of objectives established, especially at the local level

C6. Continuous upgrading of emission and air quality monitoring and reporting system, especially with respect to data quality assurance and control

C7. Upgrading the system of public information and access to information on air protection issues

C8. Fostering scientific research programmes, especially in the field of climate change

C9. Improvement of activities and cooperation on an international scale

Plan prescribed **measures for reduction of greenhouse gas emissions, promotion of energy efficiency enhancement and use of renewable energy sources.**

Measures and activities in energy generation sector

The energy generation sector includes installations for generation of electrical and thermal energy in public power and thermal power plants and installations for the production and processing of oil and gas. Major activities and measures are:

- Promoting the application of renewable energy sources in electricity generation - By 2010 the share of renewable energy sources in electricity generation will be minimum 1100 GWh/year, i.e. 5.8 per cent of the total electrical energy
- Promoting the application of cogeneration (simultaneous generation of thermal and electrical energy)

Measures and activities in energy consuming sectors – industry, households and services

In 2007 the Energy Efficiency Master Plan (EEMP) for the period 2008-2016 was drawn up by the Ministry of Economy, Labour and Entrepreneurship in collaboration with the UNDP. The Master Plan covers the sector of households, services and industry and defines objectives in line with the European Directive on Energy Conservation 2006/32/EC. The objective is to enhance energy efficiency by 1% yearly. The Air Protection Plan takes into account measures under the EEMP and sets out a somewhat more ambitious yearly target of a 1.5% rise in energy efficiency for the households and services sector and a 1% rise in the industry sector.

- Reduction in fossil fuel consumption through utilization of biodegradable municipal wastes in district heating plants or landfill biogas
- Reduction in fossil fuel consumption through the use of biodegradable municipal wastes in cement industry
- Credit supply programme for the preparation of renewable energy sources projects in Croatia through the Croatian Bank for Reconstruction and Development
- Promoting the use of renewable energy sources and energy efficiency through the Environmental Protection and Energy Efficiency Fund
- Promoting energy efficiency through implementation of the project "Removal of Barriers to Energy Efficiency in Croatia"
- HEP ESCO energy efficiency programme
- Measures of energy efficiency upgrading in building construction
- Energy efficiency labelling of household appliances

- Setting up a framework for the establishment of ecological design requirements

Measures and activities in the transport sector

- Raising attractiveness of rail transport
- Introduction of biofuel
- Promoting the use of low CO₂ vehicles
- Promoting the use of gas in vehicles

Measures and activities in the sector of industrial processes (non-energy emissions)

- N₂O emission reduction measure in nitric acid production

Measures and activities in the waste management sector

- Burning or thermal utilization of methane captured at landfills

Measures and activities in the sector of agriculture

- Action plan for the sector of agriculture from the aspect of adjustment to climate change and reduction of greenhouse gas emissions

Measures and activities in the sector of land use, land use change and forestry

- Decision on taking advantage of Article 3.4 of the Kyoto Protocol

Intersectoral measures and activities

- Trading in CO₂ emission allowances
- Increasing CO₂ charge
- Reporting under the UNFCCC and the Kyoto Protocol
- Capacity building programme for implementation of the Convention and the Kyoto Protocol
- Preparation of plans, programmes and studies for efficient implementation and creation of the climate change policy
- Establishment of a research and development programme focusing on climate change issues
- National energy programmes
- Public education and information programme
- Support to programmes and projects of the technology and know-how transfer

Applications of flexible mechanisms under the Kyoto protocol

- Establishment of infrastructure for application of flexible mechanisms under the Kyoto Protocol – authorization of the EPEEF for international purchase of emission reduction units
- Facilitating investments in CDM and JI project activities in other countries
- Inclusion of Croatia into the European emission trading scheme

Examples:

SO₂ emissions in Rijeka and Sisak arise from the operation of refineries and partly thermal power plants. This should be solved by implementation of the ELV regulation, which implies the use of low-sulphur fuel oil after 2010.

The City of Zagreb has banned the use of coal in boiler-houses. The existing coal-fired boiler-houses in the city are to be replaced and it is necessary to continue introducing the gas grid and extending the long-distance heating system.

District heating plants should be constructed as cogeneration plants and actively involved in the promotion of energy efficiency measures and the use of renewable energy sources.

New constructions and refurbishing of public institutions should meet the highest energy conservation standards.

Establishment of Centres for waste management – solving the emission from existing landfills, and RDF will use as alternative fuel in cement industry

Use of biodegradable municipal waste as fuel for district heating plants and cement industry (Našice cement industry)

Use of biomass in cogeneration for electricity and heat production.

Measures for energy efficiency were applied in parts of cement industry and waste is used for partial replacement of fuels.

Waste sector

Use of landfill biogas for energy purposes (first landfill-gas-fired power plant Prudinec, Zagreb).

4. question 4:

(a) To what extent does your country's air pollution policy address other (environmental) policies and other environmental media (e.g. fresh water, sea water, soil, waste, indoor air)? Please provide details;

At the state level the main document for enforcement of measures is Air quality protection Plan. The authority responsible for the development of the Plan is the Ministry of Environmental Protection, Physical Planning and Construction in collaboration with central government bodies responsible for the areas of health, industry, energy, agriculture, forestry, science, waters, transport, tourism and monitoring weather conditions and with other relevant institutions. In the preparation of the Plan representatives from counties, Croatian Chamber of Economy and Non-government organization (NGO's) also participated.

The Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG 61/08) and the Program for gradual reduction of emission for certain pollutants in the Republic of Croatia for period to the end of 2010. with emission projections for period from 2010. to 2020. (OG 152/08) contain a lot of measures and instruments from the field of energy, vehicles, traffic, and agriculture was taking into account.

(b) To what extent do other policies take air pollution into account (e.g. industrial development, nature policy, spatial planning, financial policy, toxic substances policy)?.

From 2005 all planned documents that were established at national and local level inevitable contains measures for environmental protection and air protection.

Examples:

Energy strategy

Waste Management Strategy of the Republic of Croatia

Spatial planning – programs contain measures o air quality

Nature strategy

Strategy for Sustainable Development of the Republic of Croatia

Transport Strategy etc.

II. INDUSTRIAL SECTOR

5. Question 5: Please provide information on non-technical measures in your country for

addressing the control of emissions from the industrial sector:

(a) Please describe the programmes and measures (whether mandatory or voluntary) that are in place in your country to address emissions from the industrial sector, including their potential impacts and positive or negative effects. These could include programmes to promote energy efficiency, renewable energy and energy conservation, programmes for reducing emissions from existing sources, financial assistance schemes, labelling schemes, classification of environmental preferability, product substitution, etc.;

➤ **Programs for reduction of emission of certain pollutants**

Legislation: According to the Air Quality Act Ordinances and Regulations where emission limit values for pollutants emission into the air from the stationary sources (industrial installations and time frame for harmonization of existing installations) were prescribed.

a) According to the Regulation on limit values of pollutant emission into the air from stationary sources (OG 21/07, 151/08) the owner of or user of a large combustion plant or gas turbine was obliged to submit to the Ministry the Emission Reduction Programme for air emissions of pollutants and compliance of emissions from existing large combustion plants and gas turbines with the ELVs prescribed pursuant to this Title by the 31 December 2007.

On the basis of Emission Reduction Programmes the Plan on reduction of emissions of sulphur dioxide, nitrogen oxides and particulate matter from major combustion plants and gas turbines in the territory of the Republic of Croatia (OG No. 151/08) was adopted.

b) According to the same Regulation owner/user of installation where organic solvents are obliged to obliged to demonstrate compliance with the:

- ELVs in waste gases at the stack, fugitive emission values and total emission limit values, and
- the requirements of the Emission Reduction Programme with measures for emission reduction.

c) The Program for gradual reduction of emission for certain pollutants in the Republic of Croatia for period to the end of 2010 with emission projections for period from 2010. to 2020. (OG 152/08) covers pollutant: SO₂, NO₂, volatile organic compounds (VOC), NH₃, PM and heavy metals: Cd, Pb and Hg.

The main goal of the Program is on the long-term reducing the emission of SO₂, NO₂, VOC and NH₃ to permanently improve air quality in the Republic of Croatia, especially in the areas where air quality is II or III category. Specified pollutants are responsible for acidification, eutrophication and ground-level ozone.

Program shows that implementation of one measure will not have impact on appropriate air quality, so it is necessary to implement a package of measures through certain time period.

Program is fully complying with the Strategy of energetic developments in the Republic of Croatia (OG 130/2009).

➤ **Taxes**

According to the Act on the Environmental Protection and Energy Efficiency Fund (OG 107/03) regulations that prescribed obligations for industrial and energy installations yearly payment for emission of SO₂, NO_x and CO₂ into the air were prescribed. The Environmental Protection and Energy Efficiency Fund, established in 2003, based on that Act, collected money financed projects and programs in environmental protection, nature protection and projects in the field of renewable sources and energy efficiency.

➤ **Reduction of greenhouse gas emissions, promotion of energy efficiency enhancement and use of renewable energy sources**

In the legislative framework including the Energy Act (OG 68/01, 177/04, 76/07, 152/08), Electricity Market Act (OG 177/04, 76/07, 152/08) and Act on the Regulation of Energy Activities (OG 177/04, 76/07) and strategic documents concerning development of the energy sector in the Republic of Croatia (Energy Sector Development Strategy of the Republic of Croatia - OG 38/02, national energy programs), energy efficiency, cogeneration and use of renewable energy sources are designated as a

special interest of the Republic of Croatia, in line with the present state of the energy sector and the commitment to development.

- Regulation on minimal share of electricity produced from renewable energy sources and cogeneration whose production is incentivized (OG 33/07) - in 2010 the minimum share of renewable energy sources in customer supply will amount to 1139 GWh/year of electricity without electricity from large hydropower plants (capacity of 10 MW or more). Production of 1139 GWh in 2010 is supposed to represent about 5.8% in the structure of total electricity consumption in relation to the share of 0.8% in Croatia in 2004.
- The Ordinance on the use of renewable energy sources and cogeneration (OG 67/07) specifies renewable energy sources use for energy production, conditions and feasibility of their use, including planning, administrative procedures, register of renewable energy and cogeneration projects and other issues of significance for using the renewable energy sources and cogeneration).
- The Ordinance on acquiring the status of a privileged electricity producer was also approved (OG 67/07) which lays down the types of plants with regard to application of specific technology using renewable energy sources for producing the electricity and criteria for high-efficiency cogeneration pursuant to Directive 2004/8/EC, and which may be granted the status of privileged producer.
- By implementation of corresponding bylaws which deal with renewable energy sources and cogeneration (OG 33/2007 and 67/2007) as of July 1, 2007 the system of privileging was established for the power plants generating electricity from renewable energy sources, as well as the system of follow up, supervise and long-term promotion with the feed-in tariffs.

The Register of projects and plants for the use of renewable energy sources and cogeneration and of eligible producers was established and since than Ministry of Economy, Labour and Entrepreneurship has received 320 projects in the period from 1st July 2007 until 20th May 2009, which are prosecuted through administrative proceedings:

- 36 projects from solar power plants PV,
- 92 projects from small hydro power plants,
- 19 projects from biogas power plants,
- 18 project from biomass power plants,
- 9 projects from high-efficiency cogeneration plants,
- 172 projects from wind power plants,
- 1 projects from geothermal power plants
- 1 projects from landfill gas power plants and power plants using gas from waste water treatment plants

Biofuels

Croatia has defined its indicative national target for the share of biofuels in transport until 2010; intense activities are under way in order to ensure that this target is achieved in the light of the current, relatively low levels.

- The Regulation on the quality of biofuels (OG 141/05) lays down the national indicative target share of 5.75% for biofuels in total annual consumption of gasoline and diesel fuel to be achieved by 31 December 2010, the biofuels put on the domestic market, limit performance values of biofuels and prescribed standards, informing the public on the availability of biofuels and other renewable fuels, as well as the obligation of labelling biofuels.
- The Croatian Parliament adopted the Act on Biofuels for Transport on 22 May 2009 (OG 65/09), with a view to fully aligning the Croatian energy legislation with the EU acquis, particularly with Directive 2003/30/EC on the promotion of use of biofuels. The Act also includes some provisions from the newly adopted Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources amending and

subsequently repealing Directives 2001/77/EC and 2003/30/EC (Commission proposal of the new Directive - COD/2008/0016, COM (2008)0019 – was used as a reference point). The Act regulates the production, trade and storing of biofuels, the use of biofuels in transport, the adoption of programmes and plans for promotion of production and use of biofuels, authorities and the responsibilities for defining and implementation of the policy of promotion of production and use of biofuels, as well as the incentives for biofuels use.

Implementation of energy end use efficiency and Energy Services Directive

In December 2008 the Energy End-Use Efficiency Act (OG 152/88) was adopted. The Energy End-Use Efficiency Act is aimed at increasing energy efficiency in end-use energy consumption sectors (households, services, industry, transport). The Act regulates the programming and planning of energy efficiency improvement at all levels, public authority for the adoption and implementation of energy efficiency policy, measures of energy efficiency (in particular the services and energy audit, except for the audits for the purpose of issuing energy certificates), obligations of the public sector, energy entities, main consumers and beneficiaries of the funds of the Environmental Protection and energy Efficiency Fund.

In 2009 specific actions have been launched as laid down in the Energy Efficiency Program of the Republic of Croatia (2008—2016) and in the first National Energy Efficiency Action Plan (2008 –2010).

In the framework of the implementation of the National Energy Efficiency Action Plan a number of activities have already been initiated and are under way, such as “House in Order” and “Systematic Energy Management (SEM) in Cities and Counties”, which will serve to develop a comprehensive data base on all public facilities and use of energy in them, thus making it possible to have an insight into the entire sector of public services. The “House in Order” Project is aimed at reducing the energy consumption and thus the costs of operation and maintenance costs in state administration buildings. The Systematic Energy Management (SEM) in Cities and Counties Program is aimed at reducing the energy consumption, in particular in buildings and the other sectors within the competence of cities and counties.

Additionally, an informative campaign for the promotion of energy efficiency is under way in Croatia, aimed at raising public awareness regarding efficient energy consumption and at promoting the application of cost- and energy-efficient technologies, materials and services in Croatia.

The Action Plan for the implementation of the Energy Performance of Buildings Directive has been adopted, which transposition is within the competence of two ministries. The Energy Performance of Buildings Directive has been transposed into the national legislation by means of the Physical Planning and Building Act (OG 76/07) and the Energy End-Use Efficiency Act (OG 152/08).

Based on the Physical Planning and Building Act the following subordinate regulations have been adopted:

Technical Regulation Concerning Energy Economy and Heat Retention in Buildings (OG 110/08),

Technical Regulations on Heating and Air-conditioning Systems of Buildings (OG 110/08),

Ordinance on Certification of Energy Performance of Buildings (OG 113/08) and

Ordinance on the Requirements and Criteria to be met by Energy Auditors and Energy Certifiers of Buildings (OG 113/08, 89/09).

The Ministry of Environmental Protection, Physical Planning and Construction and the Ministry of the Economy, Labour and Entrepreneurship have started taking part in the activities of the Projects CA-EPBD II and CE-ESD, co-financed under the Program of Intelligent Energy Europe as the part of Competitiveness and Innovation Framework Program (CIP). At the same time Croatia participates in the Management Board of Intelligent Energy Europe II. The previous participation of Croatian institutions in the Program shows exceptionally successful outcomes (over 20 projects, the establishment of 4 regional/local energy agencies).

Within the framework of the Energy Community at the Ministerial Council held in Belgrade in December 2007, a special Energy Efficiency Working Group was established, which is chaired by the representative of the Republic of Croatia.

(b) Does your country have in place any economic instruments for this sector? If so, please describe your country's most important economic instruments (e.g. tax incentives, fees, charges, subsidies, credit guarantees and low interest loans) and market-based programmes (e.g. emission trading programmes);

- Measures for Application of Economic Instruments under the Polluter Pays Principle
- Regulation on unit charges, corrective coefficients and detailed criteria and benchmarks for determination of the special environmental charge for motor vehicles (OG No. 2/04)
- Ordinance on the method and terms for calculation and payment of the special environmental charge for motor vehicles (OG No. 20/04)
- Regulation on unit charges, corrective coefficients and detailed criteria and benchmarks for determination of the charge for emission into the environment of sulphur oxides, in the form of sulphur dioxide, and nitric oxides, in the form of nitric dioxide (OG No. 71/04)
- Regulation on unit charges, corrective coefficients and detailed criteria and benchmarks for determination of charges for burdening the environment with waste (OG No. 71/04)
- Ordinance on the method and terms for calculation and payment of charges for emission into the environment of sulphur oxides, in the form of sulphur dioxide, and nitric oxides, in the form of nitric dioxide (OG No. 95/04)
- Ordinance on the method and terms for calculation and payment of charges for burdening the environment with waste (OG No. 95/04)
- Regulation on greenhouse gas emission quotas and the method of emission allowance trading (OG No. 142/08)
- Regulation on implementation of the Kyoto Protocol flexible mechanisms (OG No. 142/08)

(c) What innovative and alternative approaches, if any, are you using to control emissions from this sector?.

According to the Air Protection Act (OG 178/04, 60/08) the principal measures for climate change are:

- use of renewable energy sources;
- energy efficiency improvement in generation, transmission and consumption of energy,
- use of low-carbon fuels, particularly natural gas;
- measures in industrial processes, where cost-effective;
- waste management measures.

Specific priority measures are:

- use of wind power plants;
- use of biomass for heat generation;
- improvement of insulation and energy efficiency in building construction;
- use of biomass in cogeneration plants;
- use of biodiesel and other biofuels in transport.

Measures and activities in the sector of industrial processes (non-energy emissions)

Control of emission is prescribed by the Regulation on limit values for pollutant emissions from stationary sources into the air (OG No. 21/07, 150/08).

Based on the new Environmental Protection Act (OG 110/07) prior to starting construction and operation, as well as prior to a significant change in operation or reconstruction of the installation intended for performing an activity, which may cause emissions which pollute the soil, air, water and sea, the company shall obtain integrated environmental protection requirements. Integrated environmental protection requirements shall be determined with the aim of integrated environmental protection through prevention, reduction and removal to the greatest possible extent of pollution, primarily at the source, and through ensuring prudent management of natural assets by supervising pollution and establishing a sustainable balance between human activity and social and economic development on the one hand and natural assets and nature's regenerative capacity on the other.

III. TRANSPORT SECTOR

6. Question 6: Please provide information on non-technical measures in your country for addressing the control of emissions from the transport sector.

(a) Please describe the programmes and measures (whether mandatory or voluntary) that are in place in your country to address emissions from the transport sector including their potential impacts and positive or negative effects. These could include financial assistance schemes to promote public transport, labelling schemes, traffic management schemes, use of electrical vehicles, cleaner fuels, etc.;

TRANSPORT-RELATED MEASURES (from the Plan for Air protection)

Activity/Measure	Implemented by	Supported by	Implementation period
Spatial and urban development planning on sustainable development principle	Ministry of Sea, Transport and Infrastructure	Ministry of Environmental Protection, Physical Planning and Construction	2009-2011
Higher incentives for sustainable transport projects	Environmental Protection and Energy Efficiency Fund	Ministry of Sea, Transport and Infrastructure, Ministry of Environmental Protection, Physical Planning and Construction, Ministry of Economy, Labour and Entrepreneurship	2009-2011
Preparation of the study "Analysis of the Possibility to Reduce Traffic-related Impacts on Air Pollution in Towns of Croatia"	Local self government units	Ministry of Environmental Protection, Physical Planning and Construction, Ministry of Sea, Transport and Infrastructure, specialized institutions	2009-2010
Evaluation of the state in towns at the level of roads and streets	Local self government units	Environmental Protection and Energy Efficiency Fund	2009-2010
Pilot project of restricting and charging for the entry of vehicles into high pollution zones (CO, NO _x , NMVOC and PM)	Ministry of Interior	Ministry of Environmental Protection, Physical Planning and Construction	2009-2010
Use of gas and biofuel, especially in public transport and on islands	Local self government units, Ministry of Economy, Labour and Entrepreneurship	Ministry of Environmental Protection, Physical Planning and Construction, Environmental Protection and Energy Efficiency Fund	2009-2011
Application of MARPOL regulations for ships	Ministry of Sea, Transport and Infrastructure	Ministry of Environmental Protection, Physical Planning and Construction	2008-2011

ECO TEST – In the course of regular annual technical test, pursuant to the Ordinance on technical tests of vehicles, exhaust gases from motor vehicles are examined (ECO TEST). ECO test consists of a visual control of prescribed devices and measurement of exhaust gas system. Measured and calculated values of exhaust gas are compared with manufacturer's data for ECO test, and if manufacturer's data are not available, the measured and calculated values are compared with the prescribed values. As of 1 October 2004, technical test of a vehicle can not be certified if the ECO test proves that the vehicle in question does not meet the prescribed environmental requirements. This special environmental charge on motor vehicles is raised by the Environmental Protection and Energy Efficiency Fund and is used to implement measures for environmental emission reduction.

Local level

At the local level the county assembly or the City assembly of the City of Zagreb shall adopt the Programme for protection and improvement of air quality which is a constituent part of the environmental protection programme for the county region or City of Zagreb.

The city or municipal council shall adopt the Programme for protection and improvement of air quality for the city or municipal area in which the level of air pollution is above the tolerance value (TV).

The Programme shall contain in particular: identification of the location of excess pollution, general information, competent responsible body, nature and assessment of the pollution, origin of the pollution, situation analysis, details on measures undertaken, measures for air pollution abatement, order and deadlines for achieving the measures and cost estimate for implementation of the Programme, particular measures in the field of transport, because from the data on air quality especially in towns big percentage of pollution came from transport sector.

- (b) Does your country have in place any economic instruments for this sector? If so, please describe your country's primary economic instruments (e.g. tax incentives, fees, charges, subsidies, credit guarantees and low interest loans) and market-based programmes (e.g. road pricing programmes);

According to the Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG 61/08) traffic-related emissions will be the most difficult to abate. The measures relate for the most part to technical improvements of motor vehicles and their implementation is making very slow progress. In the car industry the legislative requirements are to be announced 5-10 years in advance and the total replacement of the fleet takes as long as 20 years.

To reduce total traffic-related emissions, a mere increase in energy efficiency of cars or a reduction of emissions of exhaust gases from motor vehicles cannot suffice. The entire transport system should be reorganized and the need for travelling and travelling times reduced. For that reason Croatia needs to place greater emphasis on the establishment of a sustainable organization of the transport system. A major breakthrough can be made in this area only, because measures relating to the efficiency of vehicles and emission reductions are in the hands of technology owners and will be a result of global agreements made between the car industry and fuel producers.

- (c) What innovative and alternative approaches, if any, are you using to control emissions from the transport sector?.

Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG 61/08)

Measures and activities in the transport sector

In the period 1998-2003 the traffic-related yearly consumption of fuel increased by 4.4 per cent on average and even by 7.6 per cent over recent years. This rise is a consequence of a considerable increase in the use of diesel fuel by 9.9 per cent and petrol by 0.6 per cent in the last five years. The most difficult task in the transport sector will be to reduce greenhouse gas emissions. Measures are implemented at a slow pace and relate mainly to improvements in technical performances of vehicles.

The experience shows that traffic related measures may sometimes have an adverse effect; for example, the improved flow rate of vehicles may increase the overall size of the traffic and thus the emissions too.

Transport sector related measures have a considerable impact on the reduction of emissions of other harmful substances and were outlined in previous sections. A particularly efficient measure for Croatian towns is the construction of bike lanes, improvement of the public transport quality and intelligent traffic regulation.

- Raising attractiveness of rail transport
- Introduction of biofuel (Regulation on the quality of biofuels, Law on biofuels)
- Promoting the use of low CO₂ vehicles
- Promoting the use of gas in vehicles
- The ECO-TEST on the vehicles with petrol and diesel engines
- According to the Regulation on the quality of petroleum-derived liquid fuels (OG No. 53/06, 154/08) Programme for monitoring the quality of liquid oil fuels is adopted for 2009 and 2010. where way of taking samples, number and frequency of taken samples, location of sampling depending on amount of fuels supplier is placed at the market or for internal use and laboratory analysis of fuel samples

IV. ENERGY SECTOR

7. Question 7: Please provide information on non-technical measures in your country for addressing the control of emissions from the energy sector.

(a) Please describe the programmes and measures (whether mandatory or voluntary) that are in place in your country to address emissions from the energy sector including their potential impacts and positive or negative effects. These could include programmes to promote energy efficiency, renewable energy and energy conservation, financial assistance schemes, labelling schemes, energy performance coefficients for buildings and housing, etc.;

Mandatory measures

- Regulation on limit values for pollutant emissions from stationary sources into the air (OG No. 21/07, 150/08),
- Ordinance on monitoring pollutant emissions from stationary sources into the air (OG No. 1/06)
- Plan on reduction of emissions of sulphur dioxide, nitrogen oxides and particulate matter from major combustion plants and gas turbines in the territory of the Republic of Croatia (OG No. 151/08)
- Programme for gradual emission reduction of certain pollutants in the Republic of Croatia for the period until the end of 2010, with emission projections for the period 2010-2020 (OG No. 152/09)

Energy – use of renewable energy sources, energy efficiency in buildings, increase of natural gas use, expanding of centralized heating system

Financial assistance

- Environmental Protection and Energy Efficiency Fund finance preparation, implementation and development of programs, projects and similar activities in the area of protection, sustainable use and improvements of environment and energy efficiency and use of renewable sources
- Feed-in tariff system for renewable sources

(b) Does your country have in place any economic instruments for this sector? If so,

please describe your country's primary economic instruments (e.g. tax incentives, fees, charges, subsidies, credit guarantees and low interest loans) and market-based programmes (e.g. emission trading programmes)?;

- Fees for emission of SO₂, NO_x, CO₂ and feed in tariff for renewable sources.
- Allocation plan for CO₂

(c) What innovative and alternative approaches, if any, are you using to control emissions from the energy sector?.

Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG 61/08)

Measures and activities in energy generation sector

- Promoting the application of cogeneration (simultaneous generation of thermal and electrical energy)
- Promoting the application of renewable energy sources in electricity generation

Measures and activities in energy consuming sectors – industry, households and services

- Reduction in fossil fuel consumption through utilization of biodegradable municipal wastes in district heating plants or landfill biogas
- Reduction in fossil fuel consumption through the use of biodegradable municipal wastes in cement industry
- Credit supply programme for the preparation of renewable energy sources projects in Croatia through the Croatian Bank for Reconstruction and Development
- Promoting the use of renewable energy sources and energy efficiency through the Environmental Protection and Energy Efficiency Fund
- Promoting energy efficiency through implementation of the project "Removal of Barriers to Energy Efficiency in Croatia"
- HEP ESCO energy efficiency programme
- Measures of energy efficiency upgrading in building construction
- Energy efficiency labelling of household appliances
- Setting up a framework for the establishment of ecological design requirements

V. AGRICULTURAL SECTOR

8. Question 8: Please provide information on non-technical measures in your country for addressing the control of emissions from the agricultural sector.

(a) Please describe the programmes and measures (whether mandatory or voluntary) that are in place in your country to address emissions from the agriculture sector including their potential impacts and positive or negative effects. These could include good agricultural practices, programmes to promote energy efficiency (greenhouses), renewable energy and energy conservation, programmes for reducing emissions from stables, financial assistance schemes, labelling schemes, etc.;

As it was mentioned in the “2010 Draft Questionnaire for Priority Compliance Review”, Ministry of Agriculture, Fisheries and Rural Development of the Republic of Croatia, in cooperation with Croatian Extension Institute has established, published and at this moment is disseminating brochure: Principles

of Good Agricultural Practice to farmers (83500 addresses). The brochure is consisted of four thematic parts: soil protection, water protection, air protection and animal protection. As part of Principles of good agricultural practice in air protection, methods for reduction of ammonia emission losses are listed in the brochure.

- (b) Does your country have in place any economic instruments for this sector? If so, please describe your country's primary economic instruments (e.g. tax incentives, fees, charges, subsidies, credit guarantees and low interest loans) and market-based programmes (e.g. emission trading programmes);

Area of economic instruments for this sector is establishment of usage of biofuel at the farms to reduce ammonia emission. Establishment of this system is stimulated through the credits as well as through the Environmental Protection and Energy Efficiency Fund.

- (c) Are there any programmes in your country that promote organic farming or consuming products from organic farming?;

Ecologic production is prescribed by the legislation that was adopted based on the Act on ecological production of agricultural products and foodstuffs (Official Gazette br. 12/01, 14/01, 79/07), as a basic act by which the ecological production in agriculture is regulated.

- (d) What innovative and alternative approaches, if any, are you using to control emissions from the agriculture sector?.

Establishment of system for biofuel production at the farms because of lower use of ammonia.

VI. RESEARCH, DEVELOPMENT AND MONITORING

9. Question 9: Please provide information related to air pollution in your country on research, development and monitoring; on the exchange of technology; and on information to the general public. Provide websites where relevant documentation is available.

- (a) Please provide information on activities undertaken with a view to encouraging research, development and monitoring;

According to the Air Protection Act (OG 178/04, 60/08) funds for the financing of the protection and improvement of air quality shall be secured from the state budget, the budgets of local self-government and regional self governments units, the Environmental Protection and Energy Efficiency Fund and other sources according to the provisions of this Act.

The funds shall be used for financing:

- state and local networks,
- obligations ensuing from international treaties,
- drafting of programmes for special purpose measurements,
- measures for the protection of people and the environment in the event of alert thresholds,
- drafting and implementation of programmes for the reduction of air pollution,
- measures and programmes for reducing the effect of climate change,
- measures and programmes for protection of the ozone layer,
- remediation programmes,
- expert and scientific research necessary for the achievement of the objectives of this Act.

Other sources are:

– financial funds from the polluter, donations, loans, state aid funds, international assistance funds, foreign investment funds intended for the protection and improvement of air quality.

According to the Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG 61/08) activities undertaken with a view to encouraging research, development and monitoring:

➤ Fostering scientific research programmes, especially in the field of climate change

This objective implies a more active cooperation between scientific institutions and government bodies in the development and implementation of research and technological projects relating to the study of atmosphere, pollutant emission reduction and adaptation and reduction of harmful effects on individual environmental components.

➤ Local plans for air quality protection and improvement

The problem with NO₂ lies mostly in the fact that it is traffic-related. Consultations held with towns that have not yet adopted plans show that human and financial resources to address this issue are lacking. In order to be able to determine cost-effective measures that comply with the sustainable development principles it is necessary to carry out a high-standard and expert survey of the state. Decision-makers are basically not willing to finance preliminary research needed, which includes traffic studies, extra measurements, modelling and development of a spatial emission cadastre.

It is therefore vital to secure stable sources of finance at the level of the local community, taking into account the damage caused by air pollution. The State may help by funding general studies, research and pilot projects. This Plan proposes the preparation of a national transport sector study (Section: Transport) intended to assist local communities in formulation of a cost-effective policy.

➤ Capacity building programme for implementation of the Convention and the Kyoto Protocol

The main areas of capacity building of the national system for implementation of the Convention and the Protocol are: national greenhouse gas inventory, greenhouse gas emission projections, policy and measures including assessment of their effects, impact assessment and adaptation to climate change, research and systematic climate observation, education and public awareness, transfer of environmentally friendly technologies, national communications and national action plans, national systems for the greenhouse gas emission assessment and inventory, inventorying methods connected to targets, deadlines and national registries, reporting obligations and flexible mechanisms under the Kyoto Protocol. The project “Capacity Building for Implementation of the UNFCCC and the Kyoto Protocol in the Republic of Croatia” cofinanced by LIFE Third Countries Programme of the European Commission was finished in October 2007.

(b) To what extent is your research, development and monitoring activities linked to international activities?;

According to the Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008 – 2011 (OG 61/08)

➤ Precipitation quality monitoring network and atmospheric deposition of pollutants

Measurements of the chemical composition of precipitation have been regularly carried out at meteorological stations of the MHS since 1981. This network consists of two stations (Puntijarka and Zavižan) that provide emission data for international exchange within the framework of the EMEP programme under the LRTAP Convention.

➤ According to the Air Protection Act (OG 178/04, 60/08) state network for air quality is consist from:

– stations for measuring background pollution, regional and transboundary long-range transmission and measurements within the framework of international obligations of the State,

The Programme of Air Quality Measurement in stations of the National Network for Continuous Air Quality Monitoring, established by Regulation on Determining Sites of Stations in the National Network for Continuous Air Quality Monitoring (Official Gazette, No. 4/2002), contains/includes:

Programme A - air quality measurement in measuring stations for background pollution, regional and long-range transboundary transport, and for monitoring performed within the scope of international commitments of the state

– stations for measuring air quality in regions of cultural and natural heritage,

– stations for measuring air pollution in settlements and industrial zones.

Through the PHARE program “Establishment of Air Quality Monitoring and Management System” new 12 monitoring stations for air quality monitoring will be established for measuring stations in rural areas and in national parks, nature parks and areas with sensitive ecosystems for measuring background and transboundary pollution.

(c) In what language is the information on research, development and monitoring available?.

It is available at the web pages in the Ministry (MEPPC) and Croatian Environment Agency (CEA) in Croatian and it is in preparation to have full set of information in English.

VII. EXCHANGE OF TECHNOLOGY

10. Question 10: Please provide information on exchange of technology in your country:

(a) Please provide information on measures taken to create favourable conditions to facilitate the exchange of information on technologies and techniques;

(b) How does your country actively promote the exchange of technology internationally?;

Conferences, giving information available at the web pages, meetings and presentations organized by the Croatian Chamber of Commerce and Croatian Chamber of Crafts, handouts.

(c) In what language is the information on exchange of information on technologies and techniques available?

At Croatian and English languages.

VIII. INFORMATION TO THE GENERAL PUBLIC

11. Question 11:

(a) Please provide information on the process for public participation in developing legislation and strategies related to air pollution in your country;

➤ According to the Article 9 of the Air protection Act (OG 178/04, 60/08) the plan for air quality as an implementing document of the strategy for air protection is prepared by the Ministry competent for environmental protection in cooperation with central state administrative bodies competent for the following areas: health, industry, energy, agriculture, forestry, science, water, sea, traffic, tourism,

monitoring of meteorological conditions, etc. Plan is adopted by the Croatian Government.

At the local level the county assembly or the City assembly of the City of Zagreb shall adopt the Programme for protection and improvement of air quality which is a constituent part of the environmental protection programme for the county region or City of Zagreb.

The city or municipal council shall adopt the Programme for protection and improvement of air quality for the city or municipal area in which the level of air pollution is above the tolerance value (TV). The Programme shall be subject to the prior approval of the county administrative body competent for environmental protection. The Programme shall be published in the official bulletin of the local and regional self-government unit.

➤ In the Article 16 of the Environmental Protection Act (OG 110/07) principle of Information Access and Public Participation is described. The public has the right to participate in the procedures for: identifying starting points, developing and adopting strategies, plans and programmes and in developing and adopting regulations and general acts pertaining to environmental protection. The public has the right to participate in procedures being carried out at the request of the project holder, operator and company, in conformity with this Act.

➤ Based on the Environmental Protection Act Regulation on information and participation of the public and public concerned in environmental matters (OG No. 64/08) was adopted. The competent body, given the complexity and nature of the subject matter on which it is obliged to provide information in accordance with the Act and this Regulation, except by means of its web page, may also provide such information through other means of informing that are more appropriate in a specific case given the local community or individual citizen, specifically:

- public notices in the press,
- public notices in the official journal of a local or regional self-government unit,
- public notices on the notice board at a particular location,
- notices in other means of public information – electronic media, etc.,
- notices on relevant notice boards, etc.,
- and by written publications.

When the information procedures regulated pursuant to the Act and this Regulation are used to inform the public concerned, the competent body shall publish the information by displaying it on the notice board at a particular location, as well as in the local or regional press. Information which is provided in accordance with the provisions of this Regulation shall be published for a period of 30 days. This period shall begin on the date specified on the main page of the web page on which the publication of information is announced. The publication of information shall be announced on the main page of the web page by copying the introductory part (without the heading) and name of the act by which the information is provided.

➤ In 2007 Republic of Croatia became party to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus 1998).

- (b) Please indicate whether your country has a programme that alerts citizens to days when poor air quality is predicted. If so, please describe it;

Regulation on alert thresholds for pollutants in air (OG 133/05) prescribes alert thresholds for sulphur dioxide, nitrogen dioxide and ozone in air, and special measures for the protection of human health and the environment which are to be taken on their occurrence.

(1) In the event of exceedance of the alert threshold and the information or alert threshold, the governments of the City of Zagreb, town or municipality in whose territory the exceedance has occurred

are obligated to take prescribed special measures for the protection of human health and the environment and determine the manner of their execution according to the Environmental Protection Intervention Plan.

(2) Special measures for the protection of human health and the environment which are to be taken on the occurrence of alert and information thresholds are provided for in Annex 1 to this Regulation.

(3) The governments of the City of Zagreb, town and municipality are obligated to ensure that the information on the occurrence of alert and information threshold is provided to the public by means of media several times a day.

(4) The governments of the City of Zagreb, town and municipality shall announce, through the media, the cessation of the alert threshold and information threshold.

According to the Article 10. if the event of exceedance of the information or alert threshold for the ozone in air or when such exceedance is predicted, the following information is to be supplied to the public:

(a) data on the observed exceedance or exceedances;

- location or area of exceedance,
- type of threshold exceeded (information or alert)
- start time and duration of the exceedance,
- highest 1-hour and 8-hour mean concentration,

(b) forecast for the following afternoon/ day(s):

- area of the expected exceedance of information and/or alert threshold,
- expected change in pollution (improvement, stabilisation, or deterioration),

(c) data on population groups at risk, possible health effects and recommended conduct:

- data on population groups at risk,
- description of likely symptoms,
- measures of precaution recommended to population groups at risk,
- where to find additional information,

(d) information on preventive measures to reduce pollution and/or exposure to pollution:

- state the main pollution sources,
- recommended action to reduce emissions.

(c) Please provide information about the way in which the general public is informed about air pollution policy in your country;

Through the web pages of the MEPPC and CEA, yearly Report.

(d) In what languages is the information to the general public available?.

Croatian (all information) and English.

IX. PARTICIPATION IN THE WORK OF THE CONVENTION AND STATUS OF RATIFICATION OF THE PROTOCOLS

12. Question 12: Please provide information on your country's current participation in the technical and scientific work under the Convention and the status of ratification of the Protocols, by completing the tables below.

Table 2: Question 12

(a) Participation in the technical and scientific work under the Convention

1. International Cooperative Programmes (ICPs) under Working Group on Effects^{1/}	Participation
(a) ICP Waters	A
(b) ICP Vegetation	P
(c) ICP Forests	A
(d) ICP Materials	N
(e) ICP Integrated Monitoring	N
(f) ICP Mapping and Modelling	A
2. Technical and scientific groups^{2/}	
(a) Task Force on Emission Inventories and Projections	O
(b) Task Force on Measurements and Modelling	N
(c) Task Force on Integrated Assessment Modelling	A
(d) Expert Group on Techno-economic Issues	N
(e) Network of Experts on Benefits and Economic Instruments	N
(f) Task Force on Hemispheric Transport of Air Pollution	N
3. Other task forces and expert groups^{2/}	
(a) Task Force on Health	O
(b) Task Force on Reactive Nitrogen	N
(c) Task Force on Heavy Metals	N
(d) Task Force on POPs	N

^{1/} Please indicate with A = active, meaning taking part with one or more monitoring sites, or P=passive, meaning taking part without sites, N = not taking part

^{2/} Please indicate with R = regularly, O = occasionally or N =never

(b) Ratification of protocols

Protocol	Ratification^{1/}	Potential obstacles to ratification and needs for assistance^{2/}	Timescale for ratification^{3/}
1. EMEP Protocol ^{4/}	Y		
2. 1985 Sulphur Protocol			
3. Nitrogen Oxides Protocol	Y		
4. Protocol on Volatile Organic Compounds	Y		
5. 1994 Sulphur Protocol	Y		
6. Protocol on Heavy Metals	Y		
7. Protocol on POPs	Y		
8. Gothenburg Protocol ^{5/}	Y		

^{1/} Indicate with **Y** if you have ratified this Protocol or **N** if you have not yet ratified.

^{2/} If not yet ratified

^{3/} If not yet ratified, please provide details of the timescale within which your country intends to ratify the Protocol

^{4/} 1984 Geneva Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

^{5/} 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone

X. APPLICATION OF BEST AVAILABLE TECHNIQUES TO MOBILE AND STATIONNARY SOURCES

13. Question 13: Please describe how your country applies best available techniques (BAT) to mobile sources and to each new or existing stationary source with regard to the Gothenburg Protocol obligations and taking into account guidance documents I to V adopted by the Executive Body at its seventeenth session (decision 1999/1).

Comment by the secretariat: The Executive Body decided at its twenty-seventh session that the above question 13 be better placed in the first part of the questionnaire (ECE/EB.AIR/2009/12) between questions 45 and 46. Therefore, in the on-line questionnaire, the question 13 has been moved and renumbered as question 45 bis.

XI. FEEDBACK ON THE QUESTIONNAIRE

14. Question 14: Have you encountered difficulties in answering this questionnaire, whether technical or interpretative? Please use the table below to provide further details.

Table 3: Question 12

Question no.	Problem	Suggestion for improvement
