EUROSAI
Working Group
on Environmental Auditing

EUROSAI AUDIT ON CLIMATE CHANGE

JOINT FINAL REPORT

Chamber of Accounts of the Republic of **AZERBAIJAN**	Audit Office of the Republic of **CYPRUS**
Rigsrevisionen - **DENMARK**	National Audit Office of **ESTONIA**	Office of the State Comptroller and Ombudsman of **ISRAEL**	State Audit Office of the former Yugoslav Republic of **MACEDONIA**
Supreme Audit Office of the Republic of **POLAND**	Accounts Chamber of the **RUSSIAN FEDERATION**
SWISS Federal Audit Office	Accounting Chamber of **UKRAINE**

2009

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Warsaw 2009

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Summary

The present audit was carried out on the basis of the Common Position on Cooperation for Coordinated Parallel EUROSAI Audit on Climate Change (hereinafter referred to as the Common Position on Cooperation), signed by the representatives of 10 Supreme Audit Institutions, the members of the EUROSAI Working Group on Environmental Auditing, on 16 January 2009 in Warsaw.

The following Institutions participated in the audit: the Chamber of Accounts of the Republic of Azerbaijan, the Audit Office of the Republic of Cyprus, Rigsrevisionen - Denmark, the National Audit Office of Estonia, the Office of the State Comptroller and Ombudsman of Israel, the State Audit Office of the former Yugoslav Republic of Macedonia, the Supreme Audit Office of the Republic of Poland, the Accounts Chamber of the Russian Federation, the Swiss Federal Audit Office and the Accounting Chamber of Ukraine, hereinafter referred to as the Cooperating SAIs. The Supreme Audit Office of the Republic of Poland was the Audit Coordinator.

The aim of the audit was to assess the actions taken in the States of the Cooperating SAIs to implement the provisions of the United Nations Framework Convention on Climate Change, the Kyoto Protocol to this Convention, Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and the requirements of the national legislation, in the scope of:

- the performance of observations on climate change and its effects,
- actions taken to mitigate climate change,
- forecasts and assessments of the actual anthropogenic greenhouse gas emission and absorption levels,
- reporting on the scope of the actions taken and planned to be taken in order to mitigate climate change and the achieved effects of these actions.

The audit demonstrated that in the period 2006 – 2008 in all the States of the Cooperating SAIs ***climate change observations*** were performed, covering climate variables and including analysis and interpretation of the research results. The scope and frequency of the research carried out in the individual States was different, but in all of them the basic climate variables were tested. The observation results were published in the reports of government agencies and statistical reports and they were also placed on the websites of the competent government institutions or meteorological services. All the States were involved in international cooperation in the scope of research and an exchange of observation data, e.g. through their participation in international networks and research projects, their work at the technical commissions of the World Meteorological Organisation and training courses. Climate change observations were funded with financial resources from the state budget, national, other than budget resources and international funds.

In all the States of the Cooperating SAIs, measures were taken to ***mitigate climate change*** through the limitation of their greenhouse gas emissions and the enhancement of the capacity of the sinks and reservoirs of these gases. Bodies responsible for taking measures to mitigate climate change were established. In 8 States, national and sectoral strategies, programmes or action plans necessary to stabilise and limit greenhouse gas emissions were prepared and in 2 States their preparation began. In 7 States the greenhouse gas emissions were reduced by 30% - 53% with respect to the base year (under the Kyoto Protocol: 1988, 1990, 1995 or 2000, depending on the State) and in 1 State the emissions grew by 85.3%. The per capita levels of anthropogenic greenhouse gas emissions varied between 5.1 – 16.4 Mg CO_{2e}.

In the EU Member States, the provisions of the Emissions Trading Scheme Directive were implemented. National emission allowance allocation plans were developed, an emission allowance trading scheme was established and the required registries were kept. Among the 6 States of the Cooperating SAIs which were not EU Member States, emission allowances were traded pursuant to the Kyoto Protocol only in 1 country.

6 States of the Cooperating SAIs – Azerbaijan, Cyprus, Denmark, Israel, the former Yugoslav Republic of Macedonia and Switzerland – were involved in the implementation of Clean Development Mechanism (CDM) projects, whereas 5 of them – Denmark, Estonia, Poland, Russia and Ukraine – participated in Joint Implementation (JI) projects. The international cooperation in the field of the mitigation of climate change effects also included the implementation of educational projects, support for legislative activities and participation in the working groups of international agencies. The activities within the framework of international cooperation were funded with national resources and those from international financial institutions, such as the World Bank and UNDP.

In all the States of the Cooperating SAIs, the measures to mitigate climate change were ***monitored***. The required reports were prepared and submitted to the UNFCCC Secretariat and the European Commission. Certain reports were submitted with a delay.

The present Report consists of three parts:

Part I contains general information on the audit, climate change in Europe, the related international regulations and presentations of the States of the Cooperating SAIs;

Part II contains the main audit findings in the four audited areas (observation, mitigation, monitoring and financing);

Part III contains summaries of national reports on audit findings, along with the assessments from the national audits, prepared by the Cooperating SAIs and provided in this Part as originally submitted.

Part III also includes the Communiqué on the Results of the Coordinated Audit of Air and Ozone Layer Protection and Implementation of Related International Agreements, and summaries of the national reports on audits, performed by the Supreme Audit Office of the Slovak Republic, the Court of Audit of the Republic of Slovenia, the Supreme Audit Office of the Czech Republic and the Austrian Court of Audit.

The present EUROSAI Audit was performed under the INTOSAI Global Audit on Climate Change.

Vocabulary	
AAUs	Assigned amount units (or allowed emission) – units expressing targets (levels) of the limitation or reduction of GHG emissions by the countries listed in Annex B to Kyoto Protocol Parties over the 2008-2012 commitment period. AAUs are trading units between countries.
Allowance	An allowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of Directive 2003/87/EC and shall be transferable in accordance with the provisions of this Directive.
CDM	The Clean Development Mechanism - an arrangement under the Kyoto Protocol allowing industrialised countries with a greenhouse gas reduction commitment (called 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. A crucial feature of an approved CDM carbon project is that it has been established that the planned reductions would not occur without the additional incentive provided by emission reductions credits, a concept known as "additionality".
CER	Certified emission reduction - a unit issued pursuant to Article 12 of the Kyoto Protocol and the decisions adopted pursuant to the UNFCCC or the Kyoto Protocol. CER is a unit issued under CDM.
CH_4	Methane
CO_2	Carbon dioxide
COP	Conference of the Parties of the United Nations Framework Convention on Climate Change.
Directive 2003/87/EC	Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (OJ L 275, 25.10.2003, p. 32, as amended).
Emissions	The release of greenhouse gases and / or their precursors into the atmosphere over a specified area and period of time.
ERU	Emission reduction unit - a unit issued pursuant to Article 6 of the Kyoto Protocol and the decisions adopted pursuant to the UNFCCC or the Kyoto Protocol. ERU is a unit issued under the JI mechanism.
Greenhouse gases, GHG	Gaseous constituents of the atmosphere, both natural and anthropogenic, which absorb and re-emit infrared radiation. GHGs are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur, hexafluoride (SF_6) and listed Annex A to the Kyoto Protocol.

JI	Joint Implementation – a mechanism defined in Article 6 of the Kyoto Protocol, allowing a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party) to acquire emission reduction units (ERUs) from an emission reduction or emission removal project in another Annex B Party, each equivalent to one tonne of CO_2, which can be counted towards the meeting of its Kyoto target.
Kyoto Protocol (KP)	Kyoto Protocol to the United Nations Framework Convention on Climate Change, done at Kyoto on 11 December 1997.
LULUCF	Land Use, Land Use Change and Forestry.
Mg CO_{2e}, or CO_{2eq}, a tonne of carbon dioxide equivalent	One metric tonne of carbon dioxide (CO_2) or an amount of any other greenhouse gas with an equivalent global-warming potential.
NAP	National Allocation Plan – a plan prepared by an EU country, stating the total quantity of allowances that the country intends to allocate for a trading period and how it proposes to allocate them to the companies participating in the EU trading scheme.
SAI	Supreme Audit Institution.
UNFCCC or Climate Convention	United Nations Framework Convention on Climate Change, done at New York on 9 May, 1992, in New York.

Units	
g	gramme
Mg	megagramme, 1 Mg = 10^6 g (1 tonne)
Gg	gigagramme, 1 Gg = 10^9 g (thousand tonnes)
kWh	kilowatt-hour, 1 kWh = 10^3 Wh
ppm	parts per million - a unit used to express the concentrations of substances which occur in very low concentrations

PART I

PART I GENERAL INFORMATION

I 1. GENERAL INFORMATION ON AUDIT

I 1.1. AUDIT SUBJECT

EUROSAI Audit on Climate Change

I 1.2. REASONS AND BASIS FOR AUDIT

The growing global greenhouse gas emissions and the related increasing effects of climate change were the reasons for the decision of the Working Group on Environmental Auditing of the European Organisation of Supreme Audit Institutions (EUROSAI WGEA) to focus international audits on the actions taken by national governments to implement international agreements and national legislation concerning climate change.

The audit was carried out in accordance with the Work Plan of the EUROSAI Working Group on Environmental Auditing for 2009.

The cooperation for the purposes of the present audit was based on the Common Position on Cooperation for Coordinated Parallel EUROSAI Audit on Climate Change signed by the Cooperating Supreme Audit Institutions, the members of EUROSAI WGEA, on 16 January 2009 in Warsaw.

The present EUROSAI Audit on Climate Change was performed under the INTOSAI Global Audit on Climate Change

I 1.3. AIM AND SCOPE OF AUDIT

The aim of the audit was to assess in the States of the Cooperating Supreme Audit Institutions:

a) the implementation of the commitments ensuing from:
- the United Nations Framework Convention on Climate Change [UNFCCC] done on 9 May 1992,
- the Kyoto Protocol to the United Nations Framework Convention on Climate Change [KP], done in Kyoto on 11 December 1997,
- Directive 2003/87/EC of the European Parliament and Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC [Directive 2003/87/EC],

and/or

b) the implementation of the national legislation related to climate change.

The scope of the audit covered major commitments in relation to:
- the performance of observations on climate change and its effects,
- actions taken to mitigate climate change,
- forecasts and assessments of the actual greenhouse gas emission and absorption levels,
- reporting on the scopes and effects of the actions taken to mitigate climate change.

The scope of audit was agreed in the Framework Audit Programme to the Common Position on Cooperation (mentioned in section I.2.). Pursuant to Article 8 of the Common Position on Cooperation, the Cooperating Supreme Audit Institutions were allowed to limit the scope of the audit depending on the national circumstances. The National Audit Office of Estonia did not audit the climate change observation, whereas the information supplied by the Rigsrevisionen - Denmark was based on factual information rather than on the National Audit, since the National Audit was demarcated to deal with energy savings in the Government

Administration. The State Audit Office of the former Yugoslav Republic of Macedonia focused its audit on the actions taken to mitigate climate change. Other three topics under the scope of the EUROSAI Audit on Climate Change are covered with relevant data and information obtained by ministries, agencies and other bodies and authorities in the country.

I 1.4. AUDITED PERIOD

The audit covered the period from 1 January 2006 to 31 December 2008.

I 1.5. AUDIT TYPE

The audit was planned and performed as a parallel[1], coordinated audit.
The audit was a compliance and/or performance audit focused on the examination of implementation, effectiveness and efficiency.

I 1.6. COOPERATING SUPREME AUDIT INSTITUTIONS

The following Institutions participated in the audit:

- Chamber of Accounts of the Republic of Azerbaijan
- Audit Office of the Republic of Cyprus
- Rigsrevisionen - Denmark
- National Audit Office of Estonia
- Office of the State Comptroller and Ombudsman of Israel
- State Audit Office of the former Yugoslav Republic of Macedonia
- Supreme Audit Office of the Republic of Poland
- Accounts Chamber of the Russian Federation
- Swiss Federal Audit Office
- Accounting Chamber of Ukraine

The Supreme Audit Office of the Republic of Poland was the Audit Coordinator.
The Governments of all the countries represented by the Cooperating SAIs had ratified the United Nations Framework Convention on Climate Change, further on referred to as the Climate Convention, and the Kyoto Protocol to the United Nations Framework Convention on Climate Change, further on referred to as the Kyoto Protocol.

Four Cooperating SAIs represented EU Member States (i.e., the Republic of Cyprus, the Kingdom of Denmark, the Republic of Estonia and the Republic of Poland), one Cooperating SAI represented Ukraine as an EU Associated State and one cooperating SAI represented the former Yugoslav Republic of Macedonia with the current status of Candidate Country for EU membership, expecting the commencement of membership negotiations.

In 2008, the Supreme Audit Office of the Slovak Republic, the Court of Audit of the Republic of Slovenia, the Supreme Audit Office of the Czech Republic and the Austrian Court of Audit completed their audit on climate change, called the Coordinated Audit of Air and Ozone Layer Protection and Implementation of Related International Agreements and expressed their willingness to present the results of this audit in the present report. The communiqué on this audit and summaries of national audit reports were included in Part III of the report.

I 1.7. AUDIT TEAMS AND AUDITED BODIES

The national audits were performed by the audit teams of the Cooperating SAIs. A total of 62 were involved in the audit, including:

1. A parallel audit means that the participating Supreme Audit Institutions adopt the same audit goals in their countries and jointly set out the relevant audit criteria and methods. However, each SAI is free to decide as to how the audit should be performed and what audit criteria and methods should be applied.

Chamber of Accounts of the Republic of Azerbaijan	2 auditors
Audit Office of the Republic of Cyprus	3 auditors
Rigsrevisionen - Denmark	2 auditors
National Audit Office of Estonia	4 auditors
Office of the State Comptroller and Ombudsman of Israel	3 auditors
State Audit Office of the former Yugoslav Republic of Macedonia	5 auditors
Supreme Audit Office of the Republic of Poland	27 auditors
Accounts Chamber of the Russian Federation	4 auditors
Swiss Federal Audit Office	3 auditors
Accounting Chamber of Ukraine	9 auditors

The audit covered the bodies responsible for the implementation of the UNFCCC, KP and Directive 2003/87/EC, i.e. the competent authorities of the national, regional and local administrations, research institutes and industrial plants.

I 2. CLIMATE CHANGE[2]

The climate change on Earth is a natural phenomenon, but in recent decades such change accelerated. Since 1750, i.e. the beginning of the industrial revolution, human activities have been an important factor which has sped up such change, including in particular fuel combustion which causes the emissions of so-called greenhouse gases, especially those of carbon dioxide. As a result of fuel combustion, since 1750 321 billion tonnes of carbon have been emitted, with half of this released after 1975. In 2005, the carbon emissions into the atmosphere were greater by 3.8% than in the previous year (about 8 billion tonnes), with 76.7% of total emissions originating from fossil fuel combustion and cement production and 18.6% from gaseous fuel combustion. Another factor which accelerated climate change was a decrease in the surface area of wooded areas and farmland, causing lesser carbon accumulation in soil and biomass. The carbon dioxide concentration grew from about 280 ppm in the times of the industrial revolution in the mid-18th century to 379 ppm in 2005.

In the period 1995 – 2006, the highest temperatures were recorded since their measurements started, i.e. 1850. From 1906 to 2005, the temperature on Earth grew by 0.74°C, while the sea level in the 20th century rose by 17 cm on average. The rise in the sea level was caused, among others, by snow melt in the mountains and polar regions. It is estimated that until the end of the 21st century the temperature on Earth will grow by 1.8°C to 4.0°C compared with 1980, while the average sea level will rise by 18 to 59 cm.

In the period 1900 – 2000, in most parts of Europe the number of cold and freezing days fell, whereas the number of days with temperatures exceeding 25°C and heat waves increased. In Southern Europe, fewer very wet days were recorded, whereas in Central and Northern Europe an increasing number of such days could be seen. It is estimated that from 1900 to 2000 the humidity in Northern Europe grew by 10% to 40%, whereas Southern Europe became drier by up to 20%. In the Caucasus, precipitation substantially increased (by as much as 15%) in lowlands, whereas it decreased on the eastern slopes (by up to 20%). The effects of climate

2. This sub-chapter was developed on the basis of i.a.: 1) "If the well runs dry – climate change adaptation and water", "Fish out of water – marine management in a changing climate", EEA Signals 2009 Key Environmental Issues Facing Europe - www.eea.europa.eu; 2) "The climate change and its effects" by M. Sadowski & M. Sobolewski, Seym RP, Warsaw, 2007; 3) www.climate.edu.pl.

change are violent weather events, which are uncharacteristic of the particular regions of the Earth and cause risks for human life and substantial damage to property.

The effects of climate change are related to 8 areas: atmosphere and climate, glaciers, snow and ice, sea, ecosystems and biodiversity on land, waters, agriculture, economy and human resources.

Glaciers occupy about 54,000 km^2 in Europe (without Greenland). From 1850 to 1980, the surface area of glaciers in the Alps decreased by about 1/3, whereas their mass fell by a half. In the Caucasus, 50% of glaciers disappeared. From 1966 to 2008, the annual snow covers in the Northern Hemisphere diminished by about 10%. From 1978 to 2003, the ice-covered area in the Arctic Sea decreased by more than 7%. These changes brought about greater water runoff into the seas, causing higher temperatures in the seas, and, as a result, larger amounts of plankton. A decrease in the glacier cover and snow cover causes the weaker reflection of solar radiation, an effect of which is the heating of the Earth surface. The retreat of glaciers poses a risk for the biological habitats of a large number of animal species. Climate change affects the development of tourist regions – both winter tourist destinations (lesser snow cover, a shorter skiing season) and summer tourist destinations (water-related problems, heat waves).

Recently, the sea levels round Europe rose by 0.8 mm to 3.0 mm annually, whereas the water temperatures in the Baltic and North Seas grew by about 0.5°C. Higher sea levels cause greater coast erosion and losses of coastal areas, producing higher risks of storm waves and land flooding by sea waters, which threaten salinification of coastal areas. From the mid-1980s the salinity of the Baltic Sea could be seen to fall as a result of the greater inflow of freshwaters and lesser discharges from the North Sea. The lower salinity disturbs the biological equilibrium and changes the composition of the habitats in the Baltic Sea, affecting the species composition of fish.

The warming of the climate in Europe caused many thermophilous plant species to migrate towards it and posed a risk for endemic species of Alpine flora. From 1962 to 1995, the vegetation season in Europe became longer by about 10 days and, as forecasts indicate, it will continue to extend. The longer vegetation period, which is beneficial for the economy, will be offset by the diminishing water resources. The changes in the species composition of flora will cause further consequences for climate. Higher air temperatures and lower precipitation levels will aggravate forest fire risks and cause a reduction of forestry production.

In recent years, flows in rivers changed; whereas in the North European rivers these flows increased, they fell in the rivers in Southern Europe. The higher flows in rivers are a result of increasingly frequent heavy rains, causing floods. In the period 1975 – 2001, 283 floods were recorded in Northern Europe, whereas Southern

Europe suffered from a water deficit. In the spring of 2008, the water levels in the reservoirs which supplied water to Barcelona were so low that there were plans to use ships to bring in water. In Cyprus, drought persisted for 17 years. From 2006 to 2008, the quantities of water available in Cyprus amounted from 19 to 39 million m3, while the annual demand for water exceeded 100 million m3. In Turkey, in 2008 the reservoirs which provided drinking water to Istanbul were filled to an extent of 2%, whereas those that supplied drinking water to Ankara with its 4 million inhabitants used only 1% of their capacity. In Crete, the water levels in aquifers fell by 15 m and sea water began to penetrate into reservoirs. In Spain, 700 water desalination plants are in operation, and the United Kingdom is also building such a plant. Water shortages can also be found in the Middle East. In the period 2007 – 2008, as a result of climate change, about 160 villages became depopulated in the northern part of Syria. From 1956 to 2006, the precipitation in this state diminished by 10 mm annually, whereas the temperatures grew by 0.5°C on average. It is expected that the quantities of water transported by the Euphrates, going through Turkey, Syria and Iraq, will fall by 30% and that the surface area of the Dead Sea will decrease by 80% by the end of this century. A water deficit can also be found in the Caucasus region, particularly in Armenia and Azerbaijan, where the water consumption per capita is very high.

It is estimated that the heat waves which occurred in Western and Southern Europe in the summer of 2003 caused about 20,000 deaths. High temperatures favour the spread of diseases. From 1980 to 1995, in the Baltic Sea area and in Central Europe, the tick populations could be seen to grow; they can cause e.g. tick-related meningitis and the Lyme disease.

Since 1980 the weather phenomena have been responsible for 64% of disasters, causing as much as 79% of the total number of disaster-related losses. In the course of the last 20 years, the annual disaster-related losses caused by the weather phenomena grew from about 5 billion USD to about 11 billion USD. In the 1990s, the mean annual number of weather-related events was twice as large as in the previous decade.

I 3. RESPONSES TO CLIMATE CHANGE

The importance of climate change and its global nature made it necessary to carry out effective actions at an international scale in order to slow down the climate warming by the reduction of anthropogenic greenhouse gas emissions. These actions were set out in international conventions and acts of the European Union legislation, of which the following ones should be mentioned:

- the United Nations Framework Convention on Climate Change (called the Climate Convention), done on 9 May 1992,
- the Kyoto Protocol to the United Nations Framework Convention on Climate Change (called the Kyoto Protocol), done in Kyoto on 11 December 1997,
- Directive 2003/87/EC of the European Parliament and Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (called the ETS Directive).

In the Convention, the developed countries and the countries undergoing the process of transition to a market economy agreed that the greenhouse gas emissions would be kept at their 1990 levels by 2000. Moreover, the developed countries committed themselves to assist the developing countries in their reduction of the emissions of these gases. The Convention was adopted and ratified by almost 170 states, including 37 developed States included in Annex I to the Climate Convention. Among others, the States – Parties committed themselves to:

- Periodically develop and make available to the Conference of the Parties national inventories of anthropogenic emissions and removals of greenhouse gases;

- Cooperate in the control and reduction of greenhouse gas emissions and in the measures to enhance the effectiveness of sinks and reservoirs of greenhouse gases;
- Prepare for adaptation to the impacts of climate change;
- Cooperate in the performance of scientific, technological, technical, socio-economic and systemic observations and data development;
- Communicate to the Conference of the Parties their national statistical data on the levels of greenhouse gas emissions and their removals by sinks.

The Conference of the Parties (COP) is the supreme body of the Conference, obliged to keep under regular review the implementation of the provisions of the Convention and authorised to take the decisions necessary to implement its provisions.

In the course of the 3rd Conference of the Parties in Kyoto on 11 December 1997, a Protocol to the Convention, so-called Kyoto Protocol, was adopted and signed by 84 states. The Protocol came into force on 16 February 2005 and will be in effect until 2012. The aim of the Protocol is for all the States – Parties to the Convention included in Annex I to the Convention to reduce their anthropogenic emissions of greenhouse gases in the commitment period 2008 – 2012. The developed States and those in transition committed themselves to reduce their emissions of 6 greenhouse gases into the atmosphere in the period 2008 – 2012 as a total by about 5.2% below the emission levels in 1990. The Parties were obliged to develop a national system for the estimation of their anthropogenic emissions and removals of greenhouse gases, in accordance with the adopted methodologies and global warming potentials.

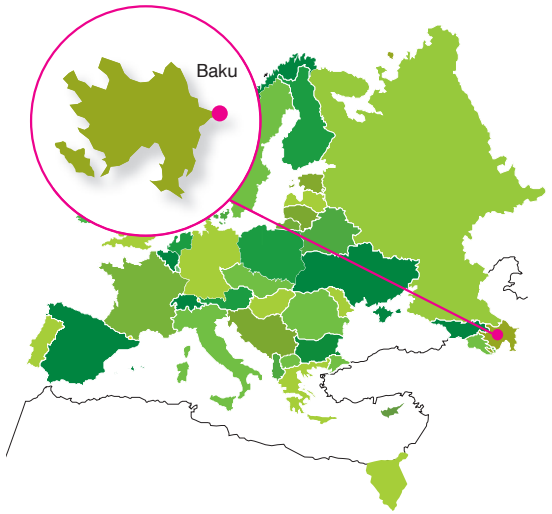
The Kyoto Protocol introduced the Joint Implementation mechanism (JI) and the Clean Development Mechanism (CDM). In accordance with the Joint Implementation mechanism, the Parties may reach an agreement to jointly fulfil their commitments under the Convention provided that their combined aggregate anthropogenic greenhouse gas emissions do not exceed their assigned amounts. Moreover, any Party may transfer to, or acquire from any other Party emission reduction units resulting from the implementation of projects aimed at reducing emissions or enhancing their removals. Under the CDM, the Parties not included in Annex I to the Convention may benefit from projects resulting in emission reductions, whereas the Parties included in Annex I, which finance or co-finance such projects, may use the emission reductions originating from such projects to fulfil part of their commitments in this scope.

In the Kyoto Protocol, the Parties committed themselves, among others, to submit an annual inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases, to incorporate the supplementary information necessary for demonstrating the fulfilment of their commitments under the Protocol, to formulate national programmes to improve the quality of emission factors and programmes to mitigate climate change and to adapt to such change, as well as to cooperate in the development, application and diffusion of environmentally sound technologies, know-how, practices and processes to prevent climate change.

The aim of Directive 2003/87/EC of the European Parliament and Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community is to effectively fulfil the commitments of the European Community and its Member States under the Climate Convention and the Kyoto Protocol, through European trading in greenhouse gas emission allowances, with the least possible diminution of economic development and employment. The Directive has obliged the Member States, among others, to introduce a system of permits to operate installations causing greenhouse gas emissions, to develop a national greenhouse gas emission allowance allocation plan, to issue, transfer, surrender and cancel the allowances allocated and to register them, to monitor greenhouse gas emissions and to verify reports, to establish penalties for infringements of the provisions of the Directive and to ensure their enforcement, to publish decisions relating to the allocation of emission allowances, projects and reports, as well as to submit reports on the application of the Directive to the Commission.

Republic of Azerbaijan

- Territory: 86,600 km^2
- Population – 8.629 million (01.01.2008)
- Developing country
- Party to UNFCCC (ratified in 1995)
- Party to Kyoto Protocol (ratified in 2000)
- Non-EU state
- Responsibility: Ministry of Ecology and Natural Resources



Climate, topographic features and ground cover

The Republic of Azerbaijan is situated between longitudes 44 and 52 east and latitudes 38 and 42 north. The capital Baku is on the 40th parallel of latitude.

Azerbaijan has borders of 765 km with Iran and 15 km with Turkey in the south, 390 km with Russia in the north, 480 km with Georgia in the northwest and 1007 km with Armenia in the west. The coastal line along the Caspian Sea is 713 km long. The highest peak is Mount Bazarduzu (4466 meters).

The biggest lakes and their areas are shown below:

Sarisu (67 km^2), Aggol (56.2), Agzibirchala (37), Mehman (35), Boyukshor (9.2), Hajigabul (8.4)

The longest rivers are the following:

Kur (1515 km), Araz (1072), Alazan (413), Iori (389), Samur (216),Terter (200)

The geographic position, landscape and the Caspian Sea substantially affect Azerbaijan's climate. The country has semi-desert, dry steppe, subtropic, moderate and cold climates. It has eight out of 11 climate zones existing on earth. The annual average temperature varies from +15°C in lowlands to 0°C and lower in highlands.

In July temperature is +25-27°C in low-lying lands and +5°C in mountainous areas. The highest and lowest temperatures ever recorded are +43°C and -30°C. Precipitation is rather unevenly distributed across the country. The annual amount of rainfall in the Kur-Araz lowland is 200-300 mm, reaching 1200-1700 mm in the south of the Lankaran lowland and at the foot of the Talysh mountains. The annual amount of total solar radiation is 120-150 kcal per one square centimeter.

The main land classification in Azerbaijan is:

- Agricultural / arable land - 54.9% (4,756,000 hectares)
- Forest 12% - (1,037,800 hectares)
- Land earmarked for roads, industrial and non-agricultural purposes - 4.1% (353,500 hectares)

- Protected areas and land of water reserves - 5% (435,500 hectares)
- Highlands and lowlands - 24% (2,077,200 hectares)

Required GHG emissions reduction (Kyoto, national legislation) and legal basis:

Mitigation of greenhouse gas emissions is realized through the following legislative acts:

- The Order of the President of the Republic of Azerbaijan dated 30 March 2006 "On additional measures over issues arising from the international conventions and agreements on the protection of the environment that the Republic of Azerbaijan acceded to".

- The State Programme dated 14 February 2005 "On the development of the fuel and energy complex of the Republic of Azerbaijan in 2005 – 2015".

- The National Programme of the Republic of Azerbaijan dated 18.February 2003 "On ecologically sustainable socioeconomic development".

- The Law of the Republic of Azerbaijan dated 11 June 2001 "On the protection of the atmosphere".

- The State Programme dated 16 November 2004 "On the development of alternative energy in the Republic of Azerbaijan".

- The National Programme dated 18 February 2003 "On restoration of forests and afforestation in Azerbaijan".

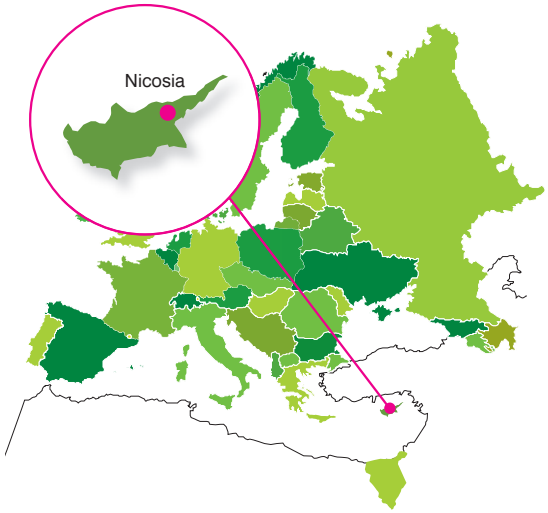
- The Order of the President of the Republic of Azerbaijan on the approval of "The Plan of Comprehensive Measures for the improvement of the ecological situation in the Republic of Azerbaijan in 2006 – 2010".

- The Law of the Republic of Azerbaijan dated 28 December 1999 "On thermal and energy stations".

The International Development Agency of Canada and the Ministry of Ecology and National Resources of the Republic of Azerbaijan signed a memorandum of understanding in 2002 for strengthening the future opportunities of Azerbaijan in the mitigation of greenhouse gas emissions and creating a favourable environment for attracting investments to energy business in the private sector.

Republic of Cyprus

- Surface – 9.251 km². 36,1% of the Republic is, since 1974, under Turkish occupation.
- Population – 793.900 (1.1.2009 estimate)
- Developed Country
- Ratified the UNFCCC on 15.10.1997
- Ratified the Kyoto Protocol on 16.7.1999
- EU member since 1.5.2004
- Overall responsibility for climate change: Environment Service of the Ministry of Agriculture, Natural Resources and Environment



Climate, topographic features and ground cover (share of afforested areas)

Cyprus has an intense Mediterranean climate with hot dry summers from mid-May to mid-September and rainy, rather changeable, winters from November to mid-March.

The island has two mountain ranges: the Pentadaktylos range which runs along almost the entire northern coast, and the Troodos massif in the central and south-western parts of the island. Cyprus' coastal line is indented and rocky in the north with long sandy beaches in the south. The north coastal plain, covered with olive and carob trees, is backed by the steep and narrow Pentadaktylos mountain range of limestone, rising to a height of 1.042 m. In the south, the extensive mountain massif of Troodos, covered with pine, dwarf oak, cypress and cedar, culminates in the peak of Mount Olympus, 1.953 m. above sea level. Between the two ranges lies the fertile plain of Messaoria.

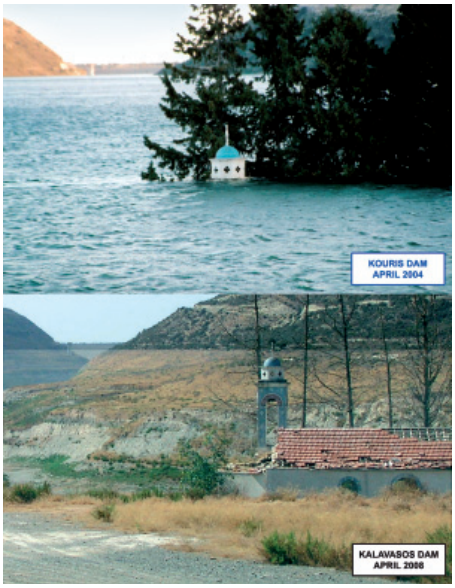
The total forest area under the government controlled area of Cyprus for 2006 was 172.858 ha, corresponding to 18,68% of the total government controlled area of Cyprus.

Possible climate change effects

General. According to the Cyprus Meteorological services, during the 20th century remarkable variations and trends were observed in the climate of Cyprus, particularly in the two basic climatic parameters, precipitation and temperature. Similar climatic variations and trends were observed in countries of the eastern Mediterranean and the Middle East, which is an evidence of change in the general circulation of the atmosphere in the area. In Cyprus the precipitation presented a decreasing trend and the temperature presented an increasing trend. The rates of change of precipitation and temperature are greater during the second half of the century compared to those in the first half of the century. In the last decades the number of years of low precipitation and drought is greater than before and the semi – arid conditions both in

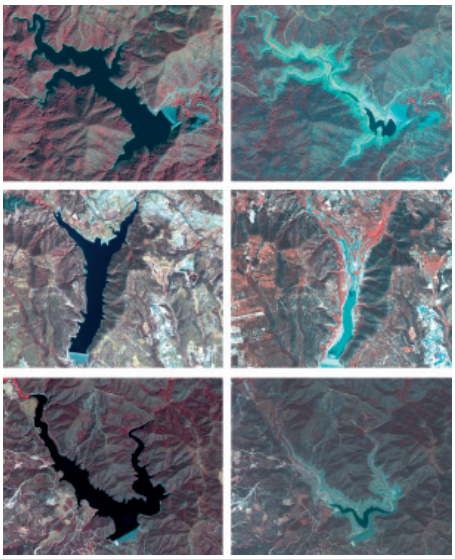
Cyprus and in the eastern Mediterranean were deteriorated. Also, the most of the warm years in the century were observed in the last 20 years. The above have a severe effect on, among other things, agriculture, the island's water reserves and condition of forested areas. The depletion of water reserves was so adverse during the last two years, following an extended period of drought, that the Government had to implement severe and costly measures to ensure the adequacy of water supply in households, such as the importation of drinking water from Greece and the imposition of cuts in the supply of water to households. In the meantime, the construction of additional desalination plants is in progress and this is expected to limit the dependence of the supply of drinking water to weather conditions.

Precipitation: The decrease in the amount of precipitation was remarkable. While the average annual precipitation in the first 30-year period of the century was 559 mm, the average precipitation in the last 30-year period was 462 mm, which corresponds to a decrease of 17%. The rate of decrease of the average precipitation in Cyprus during the 20th century was one millimetre per year. The decrease in precipitation occurred mainly in the second half of the century, as a result of the higher frequency of occurrence in the number of years of low precipitation and drought.



Temperature: The average annual temperature in Cyprus, both in urban and in rural areas, presented an increasing trend. The greater increase in temperature in the towns is due to the urbanization effect, however, the fact that an increase is also observed in rural areas, is indicative of the general increase in temperature in our area as well as globally.

Temperature during the 20th century showed a rate of increase of 0,01°C per year. In the period 1976 – 1998 the average rate of increase in temperature was 0,035°C / year in the towns and 0,015°C in the rural areas. In Nicosia the average annual temperature increased from 18,9°C in the first 30-year period of the century to 19,7°C in the last 30-year period, an increase of 0,8°C.



Required GHG emissions reduction

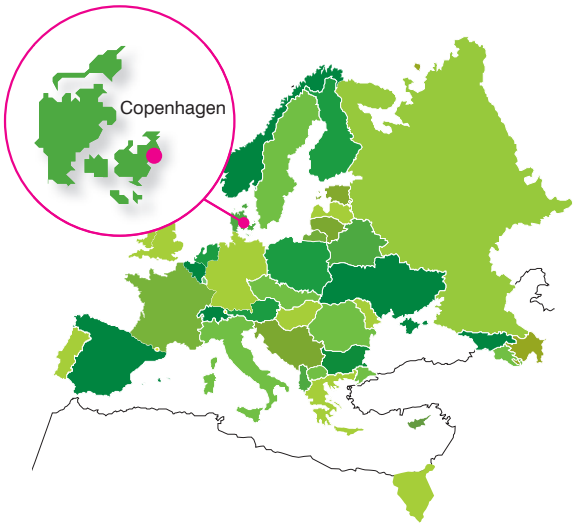
Cyprus is neither an Annex I party to the Convention, neither an Annex B party to the Protocol, and hence has, currently, no quantifiable commitments for the reduction of GHG emissions.

Legal Framework

(a) Law 19(III)/1997 for the ratification of the UNFCCC
(b) Law 29(III)/2003 for the ratification of the KP
(c) Law 132(I)/2004 on emissions trading system for reconciliation with the Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC

Kingdom of Denmark

- Surface – 43,090 km^2, exclusive of Greenland and the Faroe Islands;
- Population – 5.511 million people (estimated on 01.01.2009);
- Developed Country with high living standards and small differences between rich and poor;
- Party to the UNFCCC (signed on 9 June 1992, ratified on 21 December 1993, entered into force on 21 March 1994);
- Party to the Kyoto Protocol (signed on 29 April 1998, ratified on 31 of May 2002, entered into force on 16 February 2005);
- EU Member State since 1973;
- Responsibility: Ministry of Climate and Energy, Ministry of Environment and Climate Committee.



Climate, topographic features and ground cover (share of afforested areas)

Denmark is located between the latitudes of 54° and 58° North and the longitudes of 8° and 15° East. The bulk of Denmark is the peninsula Jutland, which juts up from the European continent and shares the border with Germany. The rest of the country consists of 406 islands, 78 of which are inhabited. Denmark has a total coast line of 7,314 km. The highest point is 170.68 m above sea level. The climate is temperate coastal climate; January and February are the coldest months with an average temperature of 0.0°C, and August is the warmest with an average temperature of 15.7°C. The average wind force across the year is 7.6 m per second. The weather in Denmark is heavily influenced by the sea as well as the continent. 62% of the total area in Denmark is cultivated. 56% of the land is used for growing corn, 20% for grass, 4% for roots and 4% for seed. 12.4 % of Denmark is covered by forest and dry nature types as moors, while lakes and streams account for about 7%.

Average annual temperature differences in recent 100 years and forecasts

Since 1870, the temperature in Denmark has increased by about 1. 5°C. The increase is more than double the increase in the global mean temperature for the same period.
According to the IPCC scenarios (A2 and B2), the mean temperature in the winter period will increase by 2-3°C and in the summer period by 1-3°C during the next 100 years.

Climate change effects in the country

Today, the average winter temperature is most often warmer than 2°C, and the average summer temperature is about 16°C. With the more cloud, more precipitation has come, there are fewer days with snow cover, and temperatures are higher.
The precipitation is increasing. This is due to an average increase in cloud cover by about 5 percentage points since observations began in 1874. The annual precipitation measured in Denmark is now about 750 mm, which is an increase by about 15% - or 100 mm – since records began in 1874. Precipitation is most extensive in the western and southern parts of Jutland, with almost 1,000 mm, and less on the eastern islands, where about 600 mm is recorded each year. Furthermore, the sea level around Denmark has risen over the past 115 years. The maximum rise observed is in south-western Denmark with 1 mm per year.

Legal acts

- The Danish implementation of the EU ETS scheme: Consolidation of the Act on CO_2 allowances, Act no. 348 of 9 May 2008;
- Act no. 1392 of 27 December 2008, Promotion of Renewable Energy Act;
- Act no. 585 of 24 June 2005 to Promote Energy Savings in Buildings;
- Act to Promote Energy Savings in Buildings. Comments on the proposal no. 136 of 30 March 2005;
- Act no. 450 of 31 May 2000 on the Promotion of Savings in Energy Consumption;
- Executive Order no. 350 of 3 May 2000 on Energy-saving Activities in Public Electricity Supply Undertakings;
- Act no. 308 of 30 April 2008 on Environmentally Preferable Design of Energy Consuming Products, §18 on environmentally preferable design of energy consuming products;
- Circular no. 27 of 19 April 2005 on energy efficiency improvement in the state institutions.

Required GHG emissions' reduction levels (according to KP and the national legislation)

According to the EU Burden Sharing Agreement of June 1998 under the Kyoto Protocol, Denmark is obliged to reduce its emissions by 21% in 2008 – 2012 in relation to its base year emissions. As stated in Denmark's declaration on the Burden Sharing Agreement, Denmark's assumptions included that the 21% reduction should be adjusted for the extraordinarily large imports of electricity in the base year 1990.

Reductions in GHG emissions' levels achieved between the base year and the end of 2007

The net CO_2 removal by forestry and soil in 2007 represented 1.7% of the total emissions in CO_2 equivalents in 2007. The national total greenhouse gas emissions in CO_2 equivalents excluding LULUCF decreased by 3.5% from 1990 to 2007 and fell by 5.9 % when including LULUCF.

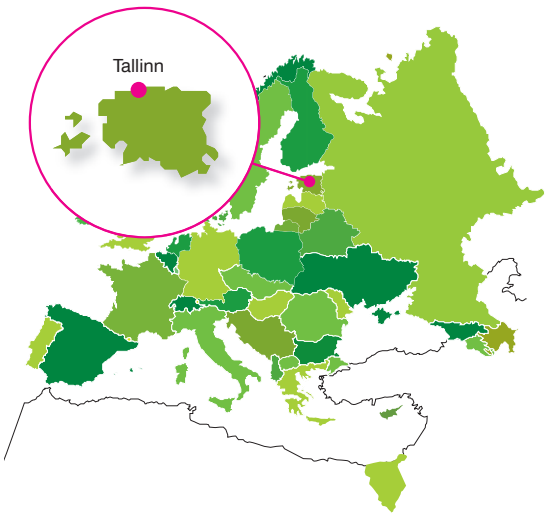
Financing

Denmark does not receive any funding from international bodies to prevent or mitigate climate change effects. Denmark invests in international CO_2 funds administered by the World Bank and the Nordic Environment Finance Corporation (NEFCO).

Republic of Estonia

Country surface and population

The total area of Estonia is 45,228 sq.km, including 42,398 sq.km of mainland and 2,830 sq.km (6%) of inland waters. Estonian population is 1 340 415 (01.01.2009).



Climate, topographic features and landcover (share of afforested areas)

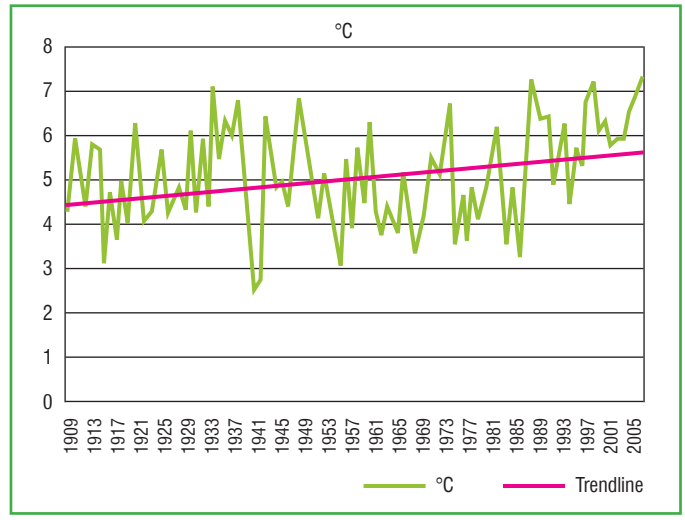
In Estonia there is the transition between continental and maritime climates. The weather in Estonia is considerably milder than the continental climate characteristic of the same latitude. Annual precipitation is 550–880 mm. The temperature in the summer months (June–September) is typically 15…18°C; in winter, –4 to –5°C.

The Republic of Estonia is located between the 57th and 60th latitudes and the 22nd and 28th longitudes. Estonia stretches 350 km from east to west and 240 km from north to south. Sea islands form one tenth and lakes about one twentieth of Estonia's territory.
The topography of Estonia is flat, being situated between 0 and 317 meters above sea level, with the hilliest part of the country in the southeast. The average height is about 50 m above sea level.

Land cover: Estonia is rich in forests and wetlands. Forests cover 52% of the territory and 20% of the territory is covered by peatlands. The arable area is 6,983 sq.km (16% of the territory), however, 12% of this area is out of production.

Average annual temperature differences in recent 100 years and annual temperature differences

Recorded temperatures in Tartu, Estonia over the last 100 years are shown in the graph.



Climate change effects in the country

The state has not assessed climate change effects.

Country status: State – Party to the UNFCCC

UN Framework Convention on Climate Change was ratified by Estonia in 1994. Estonia signed the Convention in 1992.

In 1998 Estonia joined the Kyoto protocol. Estonia ratified the Kyoto protocol in 2002. Status of Estonia: Country that are undergoing the process of transition to a market economy.

Unit in government administrative structures responsible for the national implementation of the activities pursued with a view to mitigating climate change

Ministry of the Environment.

National legislation on climate change

Ambient Air Protection Act, 5.05.2004, new version 24.07.2009 and regulations issued on the basis of this act.

- Some of the measures for mitigating GHG emissions are regulated by laws not directly related to climate change. Such acts include e.g.:
  Environmental Charges Act, Electricity Market Act, Integrated Pollution Prevention and Control Act (list is not complete).

Required GHG emissions' reduction levels (according to the KP and the national legislation)

According to KP emissions of greenhouse gases must be reduced in 2008 – 2012 by ca 8% compared to the year 1990. National legislation does not foresee a different aim.

Reductions in GHG emissions' levels achieved between the base year and the end of 2008 (including and excluding absorption levels)

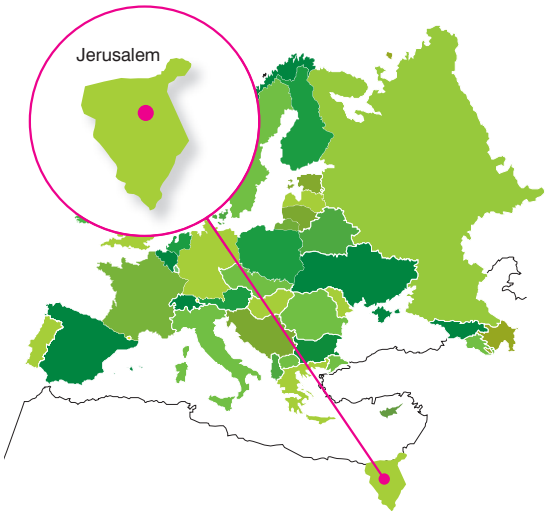
The change from 1990 to 2007 was -60,31% (from 35,367.34 to 14,115.63 Gg, including LULUCF); or -47.49% (from 41,935.43 to 22,018.68 Gg, excluding LULUCF).

Financing of climate change effects' prevention or mitigation by international funding institutions (levels and destinations of subsidies obtained in the period studied)

Foreign funding has not been used.

Israel

- Surface – 22,072 km^2
- Population – 7,465,500 people (estimated in September 2009)
- Developing Country
- Ratified the UNFCCC on 2.9.1996
- Ratified the Kyoto Protocol on 12.2.2004
- Not EU Member State
- Responsibility: the Ministry of Environment Protection



Climate, topographic features and ground cover

Israel is located in the Eastern Mediterranean Basin. The climate in most of the central area is Mediterranean, characterized by a long, hot, dry summer, a highly variable transitional season, and a cold, rainy winter. The region receives between 400 and 1000 millimetres of precipitation a year. Most of the southern region of the country is a barren desert, with less than 200 millimetres of rainfall a year. Between these two regions there is an area with a savanna-like climate, receiving between 200 and 400 millimetres of precipitation annually.

Topographically, Israel has a long narrow central mountain range, west of which is the coastal strip and east of which is the Afro-Syrian Rift. The central mountain range itself is subdivided into several landscapes, two of which - the Carmel Range and the Sulam Tsur (Ladder of Tyre) Range - extend to the Mediterranean Sea. Forests (both natural and manually planted) cover 9% of the country's territory, as of 2005.

Climate change effects in the country

According to current data, the annual warming between 1948 and 2002 averaged 0.013 degrees Celsius. According to scenarios projected by Israeli researchers: by 2020 the average temperature can be expected to rise by 1.5 degrees Celsius in comparison to the 1960 – 1990 period. In 2071 – 2100 it can be expected to rise by 3.5 degrees Celsius in comparison to the 1960 – 1990 period.

Precipitation is expected to decrease by 10% by 2020, and by 20% by 2050. That is liable to diminish the size of the water aquifers, increase the invasion of brine, and harm potability.

There will be an increase in the number of extreme rains - extremely strong rainstorms that cause flooding and heavy damage to infrastructure, property, and persons.

Global warming is expected to cause a rise in the level of the Mediterranean Sea. A rise of 10 centimetres would cause the shoreline to retreat 2-10 meters. By 2060, an anticipated one meter rise in the sea level would cause the loss of 8.4 square kilometres of coast and economic damage of another 4-5 milliard NIS. In addition, a rise in sea level would cause sea water to enter the coastal aquifer, causing serious damage.

Israeli agriculture is liable to be severely hit by the rise in temperature, the decline in rainfall, and increasing freak weather.

Country status

Israel is a Party to the UNFCCC, ratified 2 September 1996;
Israel is a Party to the Kyoto Protocol, having ratified it on 12 February 2004. It is defined by the Kyoto Protocol as a developing state.

Unit in government administrative structures responsible for the national implementation of the activities pursued with a view to mitigating climate change

Israel is not required by the Kyoto Protocol to reduce greenhouse gas emissions - it is not included among the states required to do so (they are listed in Annex B to the Kyoto Protocol).

Nevertheless, in line with Government decisions from 1996 and 2001, as described in Appendix 1, government ministries have been charged with adopting the relevant principles of the Climate Convention in their policy decisions, including activities to reduce greenhouse gas emissions. The Ministries affected include: the Ministry of National Infrastructures, the Ministry of Transportation, the Ministry of Industry, Commerce, and Employment. They are ministerially responsible for economic sectors whose activities (energy, transportation, and industry) cause greenhouse gas emissions. Similarly, the Ministry of Environmental Protection is responsible for formulating a national policy on the issue of climate change.

National legislation on climate change

In May 1996, the Government decided to accede to the U.N. Framework Convention on Climate Change, to ratify the document, and "to charge the Minister for environmental protection with establishing an inter-ministerial committee… to formulate policy guidelines for reducing greenhouse gas emissions".

In February 2001, the Government decided that "The Government of Israel shall take actions to limit/reduce greenhouse gas emissions on the basis of the conclusions reached by the inter-ministerial committee".

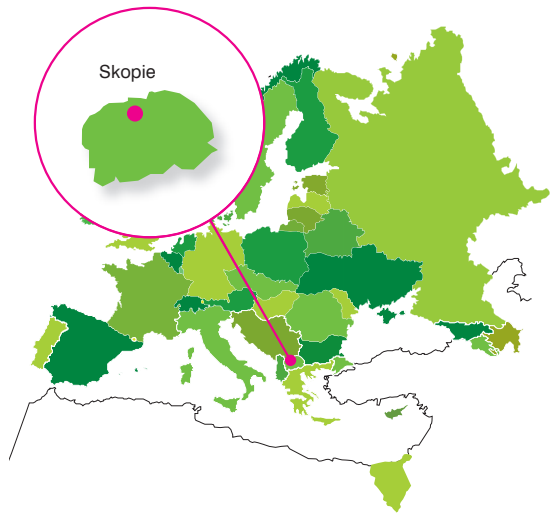
In 2008, the Clean Air Law was passed with the aim of improving air quality and reducing air pollution, in order to protect the life, health, and quality of life of the population and to protect the environment, including natural resources, ecological systems, and biological diversity. The law provides, among other things, for the regulation of pollution emissions and their monitoring, and specifies various pollutants, including ozone, which is defined by the Kyoto Protocol as a greenhouse gas. It should be mentioned that a monitoring system already existed in Israel at the national and local levels, for certain pollutants, and that since 1992, air quality regulations have determined the permissible level of ozone emission.

In May 2009, the Government decided to set up a ministerial committee for environmental protection and for preparedness for climate change that would, among other things, coordinate between the ministries on everything connected to preparing for climate change.

In June 2009, the ministerial committee decided to set up a committee of directors-general, to prepare for and adapt to climate change and reduction of greenhouse gas emissions. The committee of directors-general was charged with formulating recommendations for a national plan of action to reduce greenhouse gas emissions and to bring the plan to the ministerial committee for approval, within one year.

The former Yugoslav Republic of Macedonia

- Surface – 25.713 km^2, relief hilly and mountainous;
- Population – 2.048.619 inhabitants (estimated total population for 31.12.2008);
- Developing country[1];
- Party to the UNFCCC (ratified December 04, 1997; entered into force December 11, 1997; became Party to the Convention on April 28 1998);
- Party to the Kyoto Protocol (ratified – status of accession on November 18, 2004 and entered into force in February 16, 2005);
- Pre-accession EU Member State;
- Climate change – related tasks' performance - responsibility of MOEPP of the Republic of Macedonia;



Country profile location, population, climate and topographic features[2]

Southern Europe, central part of the Balkan Peninsula, 41° 50'N, 22° 00'E. In 2002 the total population of the Republic of Macedonia is 2.022.547 inhabitants. The average population density is 79 inhabitants per km^2. The participation of population older then 64 years is high - 11.1%. 58% of the population lives in 34 cities, while large part of rural country side is completely depopulated with unfavourable old - age structure. Climate is dominantly sub Mediterranean, with warm and dry summers, and cold and humid winters. The territory is elevated plateau of large, rolling hills and deep valleys completely bisected and surrounded by mountains. The highest point in the Korab Mountain range is at 2,764 m. Major lakes include Ohrid (deepest lake in the Balkans), Prespa, and Dojran. The rivers Vardar, Bregalnica and Crna are largest in the country. Total forest area in 2008 is 943.048 ha, and total afforested area in 2008 is 2.866 ha[3].

Average annual temperature

From 1991 on, a certain increasing trend of the annual air temperature was evident. The lowest air temperature appeared in 1975. A steady trend of precipitation decrease started in 1984. The most characteristic dry period occurred between 1984 and 1994. The hottest year recorded in the territory of the country was 1994, which was warmer by 2°C than the long-term average. Significantly higher average annual temperatures were recorded in 1999, 2002 and 2003. Significantly worse scenarios provide for mean annual increases of air temperatures in the range between 2.5°C in 2075 and 3.2°C in 2100 and for mean precipitation decreases between 3.4% in 2075 and 4.4% in 2100 in comparison with the period from 1961 to 1990.

Expected climate change effects in the country

The expected climate change in the 21st century will affect negatively all the main sectors, such as agriculture, forestry, water resources, human health and biodiversity, and the whole economic development of the former Yugoslav Republic of Macedonia. ***Agriculture: Direct effects*** - heat stress affecting livestock, reducing its production, especially in relation to modern, highly productive breeds which have already adapted to the local environmental conditions. ***Indirect effects*** – the emergence of diseases. The reduction of the local production of animal feed will significantly affect the livestock production capacity. ***Biodiversity:*** The loss of

1. "Doing Business", 2008 report (World Bank and International Finance Corporation) ranked Macedonia as fourth in the list of the top reformists in the field of economy;

2. Source of data and information: State Statistical Office of the Republic of Macedonia – "Macedonia through figures – 2008" – 2008 edition

3. Source of data and information: State Statistical Office of the Republic of Macedonia – Statistical review – agriculture – forestry - 5.4.9.02/624

the alpine belt can be expected: Mount Pelister is expected to lose its alpine belt within 50 years. Plant communities will be threatened with extinction. The lake ecosystems will suffer catastrophic consequences due to climate change, mainly because of previously recorded water regime disturbances. Negative climate change effects threaten flora and fauna in the other two natural lakes, Ohrid and Prespa. ***Forestry:*** These impacts will increase expenditure in the forestry sector and are expected to cause significant economic damage. The economic damage caused by forest fires in July 2007, including expenses for their extinguishment, reached €21 million[4], i.e. approximately 75% of the damage caused in the period 1999 – 2005. ***Health:*** the total annual monthly mortality in the colder months is expected to grow; in the warmer months an increase of 4 - 11% of the total annual monthly mortality is expected. Persons with health problems, especially cardiovascular and respiratory diseases, have a high risk of increased mortality during heat waves. ***Water resources:*** Reduced hydrological resources leave less dilution flow in the river, leading to degraded water quality; higher temperatures reduce dissolved oxygen content in water bodies; water uses, especially those for agriculture, may increase the concentrations of pollutants released into the rivers. The average annual discharge reduction in Macedonian rivers in the period 2000 – 2003 was 36% to 58% compared with the decade 1961 – 1970.

Unit in government administrative structures responsible for the national implementation of the activities pursued with a view to mitigating climate change MOEPP[5] is coordinator of the environmental policy, designated authority to perform data gathering, carrying out, completing and storing on regular basis on all media observation systems and environment sectors – air, water, noise, soil and waste, submits the data to the EEA, designated as "National contact body" for UNFCCC, DNA is a key government body responsible for creating policy and coordination of implementation on UNFCCC and Kyoto Protocol commitments.

National legislation on climate change

The Law on Environment of 2005 and its amendments in 2005, 2007, 2008 and 2009; the Law on Energy, 23.05.2006, and its amendments in 2007 and 2008; the National Strategy on Sustainable Development & Action Plan (draft – NSSD, 2008); the Second National Environment Action Plan (NEAP II), 2006; the National Strategy on CDM for the First Commitment Period under the Kyoto Protocol 2008 – 2012; the First and Second National Communications on Climate Change; the National Transportation Strategy, 2007. ***Required GHG emissions' reduction levels:*** The potential for reduction is calculated on 4Mt CO_{2eq}/year, which translated in potential for carbon funding reduced[6] CO_{2eq} reveals between 24 and 36 ml.€/per year. According to the specific emissions (kt CO_{2eq}. per capita), Republic of Macedonia remains among countries with relatively high emissions per capita, mainly due to the use of fossil fuels in electricity production.

Reduction in GHG emissions' levels

The national greenhouse gas (GHG) inventory was prepared for the years 1999 – 2002[7]. For the period 1990-2002 the total CO_{2eq} emissions in the former Yugoslav Republic of Macedonia ranged from 11.9 to 14.4 Mt CO_{2eq}. The main contributors to the total CO_{2eq} emissions are: the energy sector, 70%; the agricultural sector, 10 -15%; all the other sectors contribute less than 10% each. The only exception came in the year 2000[8], when due to enormous forest fires, the emissions from the LUCF sector represented about 14% of the total national emissions. About 75-80% of the equivalent emissions are direct CO_2 emissions from burning, 12-14% are CH_4 emissions, 5 - 9% are N_2O emissions and about 2% are CO emissions.

CDM projects

6 CDM projects with developed PDD derived from Memorandum for cooperation with the Italian MELS[9]; 2 independent projects; 3 CDM projects in phase of PDD development with the Government of Norway.

4. Source of data and information: Second National Communication on Climate Change, 2008.

5. MOEPP - Ministry of Environment and Physical Planning of the Republic of Macedonia;

6. With an average price between 6 - 9 Euro/tone

7. The national GHG inventory was prepared for the years 1999 – 2002, with 2000 as the base year.

8. Emissions for the base year 2000 amounted to 14 318 ktCO_{2e}q, i.e. 7.16 t CO_{2eq} per capita

9. MELS - Ministry of Environment, Land and Sea;

Republic of Poland

- Surface area – 312,679 km^2
- Population – 38,136,000 inhabitants
- Developed Country
- Party to the UNFCCC (signed on 9 May 1992; ratified on 16 June 1994)
- Party to the Kyoto Protocol (signed on 11 December 1997; ratified on 2 December 2002; entered into force on 16 February 2005)
- Member State of the European Union
- The Minister of the Environment is responsible for the actions related to climate change

Climate, topography, ground cover

Poland lies in a temperate climate zone, transitional between a maritime climate and a continental one. The lowland structure of the central and northern parts of the country allows for the quick movements of large air masses from over the Atlantic or the North Sea. Along with the impacts of the Baltic Sea, the Mediterranean Sea and the Black Sea, this causes the large variability of the weather and substantial variations in the features of the seasons of the year in successive years.

Poland lies in a zone of variable winds, with westerly winds prevailing to an extent of 60%. The mean annual precipitation level is 700 mm; in the mountains, the precipitation total grows to 1,500-2,000, with its maximum value of 2,350 mm on Mount Kasprowy Wierch. The snow cover persists for less than 40 days in a year in the western part of the country, for about 60 days in the central part of Poland and for more than 100 days in its north-eastern part.

July is the warmest month, with a average temperature of 16-19°C. January is the coldest month, with an average temperature of 0-5°C. The vegetation season lasts for 180-190 days on average in the north-eastern part of the country and up to 235 days in its western part.

It is estimated that since the beginning of the 20th century the temperature in Poland has risen by 0.6 - 0.8°C. The greatest temperature increase could be observed in winter, while the minimum temperature grew most quickly. The 1990s was the warmest decade in the 20th century, whereas 1998 and 2000 were the warmest years.

In recent 10-12 years, the precipitation structure changed in Poland, with the average monthly precipitation brought about by 2-3 showers. The number of the extreme events increased, including droughts, floods, tornados, hailstorms, sudden temperature variations and temperature anomalies. It is expected that in the course of the next 100 years, the mean annual temperature in Poland will increase by 3.5°C. January can become warmer on average by even as much as 5°C.

Lowlands (areas less than 200 m above sea level) represent 75% of Poland's territory. In the south, there are uplands and three mountain ranges: the Carpathians, the Sudety and the Świętokrzyskie Mountains. The highest point is Mount Rysy, a peak in the Carpathians – 2,499 m above sea level, whereas the lowest point is situated near the mouth of the Vistula into the Baltic Sea –1.8 m below sea level.

Forestland and wooded and shrub-overgrown areas occupy about 9,463,000 ha, i.e. 30.3% of Poland's territory, while arable lands take up a surface area of 16.2 million ha, representing 50.2% of the territory of the country.

The projected effects of climate change in Poland include:

- in agriculture – a longer vegetation season, a change in the crop structure, the emergence of new pests, a water shortage and the higher costs of animal production;
- in water management – a rise in the sea level. Until now the sea level has risen by about 1.5 – 2.9 mm/year, but it is estimated that by 2080 it will rise even by as much as 0.97 m. According to scientific sources, 1,789 km^2 of coastal areas are at risk of inundation. Among others, 18 recreation centres, 5 large ports and the houses of 120,000 persons are in danger;
- changes in ecosystems - Wolin Island and the Bay of Szczecin may be destroyed and the high mountain meadows in the Tatra Mountains are at risk of vanishing due to the upward movement of the forest boundary. The species of our climate zone will be pushed out by thermophilous species.

The basic legal acts and documents pertinent to climate change include:

- the Environmental Protection Act of 27 April 2001;
- the Act of 22 December 2004 on the Air Emission Allowance Trading for Greenhouse Gases and Other Substances, along with its 9 executive Regulations;
- the National Environmental Policy for 2003 – 2006 with an Outlook for 2007 – 2010 – adopted by a resolution of the Parliament of the Republic of Poland;
- Poland's Climate Policy – Strategies for the Reduction of Greenhouse Gas Emissions in Poland until 2020 – adopted by a resolution of the Parliament of the Republic of Poland;
- Poland's Energy Policy until 2025 – adopted by the Council of Ministers;
- the Strategy for the Development of Renewable Energy – adopted by the Council of Ministers and the Parliament of the Republic of Poland;
- the National Transport Policy for 2996 – 2025 – adopted by the Council of Ministers;
- the National Forest Policy – adopted by the Council of Ministers;
- the National Programme to Augment the Forest Cover – adopted by the Council of Ministers.

Required GHG emissions reduction

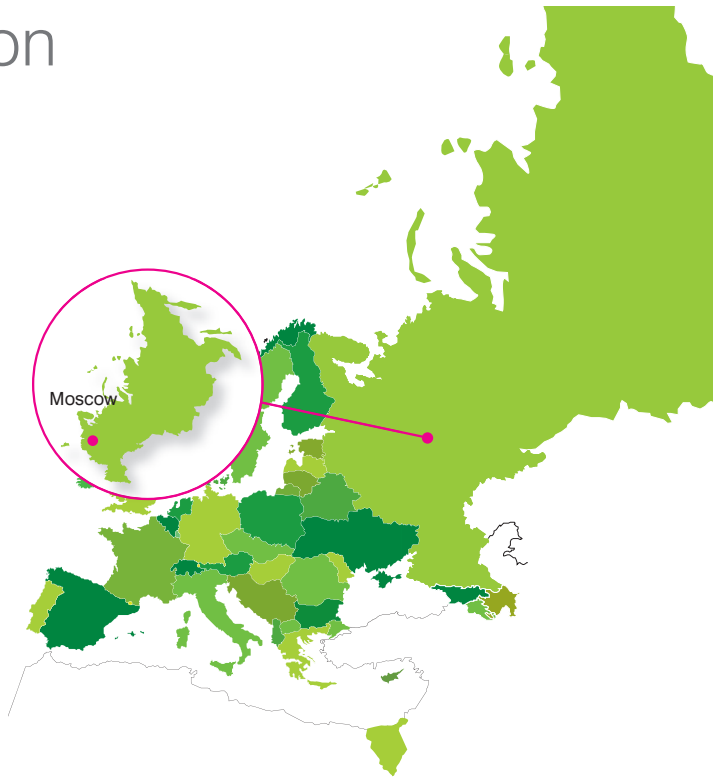
Under the provisions of the Climate Convention and the Kyoto Protocol, Poland committed itself to reduce in the period 2008 – 2012 its greenhouse gas emissions by 6% with respect to the base year (1998 for the emissions of CO_2, N_2O and CH_4 and 1995 for the industrial gases HFCs, PFCs and SF_6).

By the end 2008, the following had been achieved in Poland:

- the reduction of greenhouse gas emissions by 33.2% including absorption;
- the reduction of greenhouse gas emissions by 29.96 % excluding absorption.

In 2006 – 2007, the outlays to prevent climate change in Poland amounted to 59,170,600 EUR, including 1,315,100 EUR from foreign sources.

Russian Federation



Area and population

The area of the Russian Federation is 17,098,200 square kilometres, while its population numbers 141,904,000 (as of 1 January 2009).

Climate, topographic characteristics and ground cover (percentage of afforested lands).

Average temperatures: in January – from 0 - -5°C (in the Northern Caucasus) to -40° - -50°C (eastern areas of the Sakha Republic (Yakutia), where the lowest temperatures reach -65 - -70°C); in July – from 1°C (the northern coast of Siberia) to 24-25°C (at the Caspian Plain).

The frontiers of the Russian Federation are washed by:

The Arctic Ocean (the Barents Sea, White Sea, Kara Sea, Laptev Sea, East Siberian Sea, Chukchi Sea), the Pacific Ocean (the Bering Sea, Sea of Okhotsk, Sea of Japan), and the Atlantic Ocean (the Baltic Sea, Black Sea and Sea of Azov).

The longest rivers:

Lena – 4,400 km; Irtysh – 4,248 km; Ob – 3,650 km; Volga – 3,531 km; Yenisei – 3,487 km; Amur – 2,824 km.

The largest islands:

Novaya Zemlya Archipelago – 82,600 square km; Sakhalin – 76,400 square km; Novosibirsk Archipelago – 38,000 square km; Severnaya Zemlya Archipelago – 37,000 square km.

The largest lakes:

Baikal – 31,500 square km; Ladoga – 18,100 square km; Onega – 9,700 square km.

The highest point:

Mount Elbrus – 5,642 m.

51% – forests, 13% – agricultural land, 13% – surface waters including swamps, 23% – other land.

Average annual temperature

Deviations of average annual temperatures of ground air from the climatological normal, i.e. climate warming, are observed practically everywhere in Russia. The warming is not uniform: the biggest increases in average annual temperatures are observed in the north of the European part of Russia and Eastern Siberia, whereas in the southern and southwestern regions the warming is much smaller, and in the Chukchi Peninsula there is no warming at all. The highest increase of warming is over 3 degrees.

Recent climate change in Russia

Climate change in Russia is characterized by significant seasonal variations. In winter, substantial warming occurs in central and northern Russia (up to + 6 degrees in some areas), whereas in the southern and utmost

eastern areas winter temperatures are below the normal. Thus, climate extremity increases in winter, while in summer temperature variations are slight. The spring and autumn periods are in between.

The country's status

The Kyoto Protocol to the UN Framework Convention on Climate Change was signed by the Russian Federation on 11 March 1999 in New York. The Russian Federation is an industrialized country with a market economy.

Government authorities unit responsible for the national introduction of the activities under consideration with regard to mitigating climate change.

The Ministry of Economic Development of the Russian Federation.

National legislation on climate change

Federal Law No. 128-FZ of 4 November 2004 "On Ratification of the Kyoto Protocol to the UN Framework Convention on Climate Change"(effective from 16 February 2005).

Required GHG emission reduction levels (according to the KP and national legislation).

The average annual greenhouse gas emission levels in 2008 – 2012 will not exceed the 1990 level.
Russian Federation guarantees and carries out quantitative obligations on restriction of GHG emissions with a huge margin. The margin of units of emissions makes more than 4 billion tons CO_{2e}.

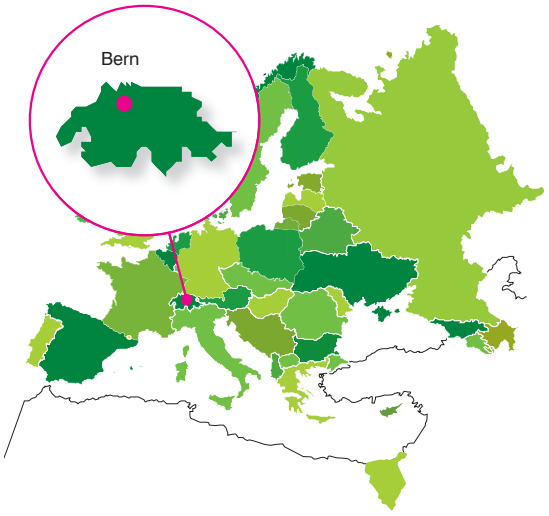
It is predicted that atmospheric emissions of greenhouse gases may reach 2,500 million tons of CO_2- equivalent only by 2015.

Funding of activities to prevent or mitigate climate change by international financial institutions

There has been no funding of activities to prevent or mitigate climate change by international financial institutions.

Swiss Confederation

- Surface – 41,285 km^2
- Population – 7,739 000 (figure for July, 2009)
- Developed Country
- Party to the UNFCCC (signed on 12, June, 1992; ratified on 10, June, 1993, into force on 21, March, 1994)
- Party to the Kyoto Protocol (signed on 16, March, 1998; ratified on 9, July 2003; into force on 16, February, 2005)
- Non-EU State
- Responsibility: Office for the Environment (FOEN)



Climate, topographic features and ground cover (share of afforested areas)

Switzerland comprises three basic topographical areas: the Swiss Alps, the Swiss plateau or "middleland", and the Jura mountains along the northwestern border with France. The Alps are a high mountain range running across the central-south of the country, comprising about 60% of the country's total area.

The Swiss climate is generally temperate, but can vary greatly between the localities, from glacial conditions on the mountaintops to the often pleasant Mediterranean climate at Switzerland's southern tip. Summers tend to be warm and humid at times with periodic rainfall so they are ideal for pastures and grazing. The winters in the mountains alternate with sun and snow, while the lower lands tend to be more cloudy and foggy in winter. The driest conditions persist in the southern valleys of the Wallis/Valais; Graubünden also tends to be drier in climate and slightly colder, yet with plentiful snow in winter. The wettest conditions persist in the high Alps and in the Ticino canton which has much sun yet heavy bursts of rain from time to time. The east tends to be colder than the west of Switzerland, yet anywhere up high in the mountains one can experience a cold spell at any time of the year. Precipitation tends to be spread moderately throughout the year, with minor variations across the seasons depending on the location. Autumn frequently tends to be the driest season, yet the weather patterns in Switzerland can be highly variable from year to year, and difficult to predict

Main land use classification of Switzerland:

- Agriculture area/cropland: 38% (14'813 km^2)
- Forest: 30,4% (12'522 km^2)
- Urban/built environment: 5,8% (2418 km^2)
- non-productive/mountains: 25,5% (10'531 km^2)

Possible climate change effects in Switzerland 2050[10]

Warming / Temperature: Experts assume a warming of approximately 2°C (with a range of uncertainty between 1 and 4°C) in autumn, winter and spring, as well as just under 3°C in summer (with a range of uncertainty between 1.5 and 5°C).

Precipitation: An increase of about 10% is expected in winter, whereas in summer a decrease of about 20% can be assumed. The number of extreme precipitation events is very likely to increase and therefore also the

10. Source: Climate Change and Switzerland 2050; www.occc.ch

number of floods, mudflows, landslides and soil erosion. In summer, heat waves (and elevated ozone concentration) will generally increase, and probably droughts as well.

Energy: Increasing risk of service interruptions in the energy sector.

Water reserves: Climate change will affect water reserves: Less water will be available in summer and autumn, and this will be more pronounced during drought periods (result in harvest losses for crop and grain legumes).

Decreasing snow reliability, melting permafrost, rock slides: Domestic tourist destinations, mainly at lakes and in the Alps, may become more attractive with increasingly hot summers. In winter, though, the rising snow line means that ski resorts in the foothills of the Alps may not operate profitably anymore. Melting permafrost means a costly risk for a number of mountain railways, as at higher elevations the foundations of pylons and stations are often anchored in the frozen loose stone. The risk of rock slides increases as well.

Flora and fauna will continue to approximate those at lower elevations and in more southern areas. Heat-sensitive species will move to cooler areas at higher elevations. Less mobile species will be radically reduced or disappear. At higher elevations, the productivity of forests and permanent grassland will be somewhat enhanced by warming, at lower elevations it will be constrained by summer drought.

Required GHG emissions reduction (Kyoto, national legislation)

Switzerland (and the EU) has committed itself to an 8% reduction (2008 –2012) and to a 20% (or 30%) reduction by 2020. The climate change prevention envisages domestic measures in view to foster the Swiss climate policy and contribute to a sound global climate regime. These are amongst others:

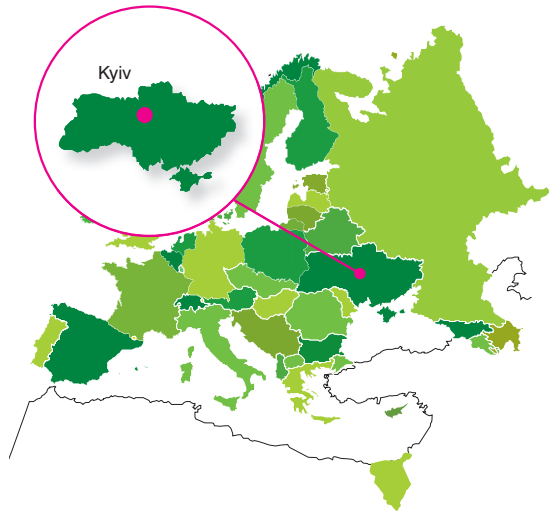
- Continuation and enhancement of the domestic emissions trading scheme, Accounting for LULUCF activities, Building renovation programme(s) and technical regulations on GHG emissions and energy efficiency (Transportation/Traffic & Housing sector)

The legal basis

- Federal Law on the Protection of the Environment (1997): mitigation of emissions from waste disposal, synthetic gases and GHG precursors
- Law on the Reduction of CO_2 Emissions (1999 – 2012): energy related CO_2 emissions (>80% of Switzerland's GHG emissions)
- Revision of the Law on the Reduction of CO_2-Emissions (2013 – 2020)

Ukraine

- Surface – 603 500 km^2
- Population – 46,144 000
  (figure for 31 December, 2008)
- Developed Country
- Party to the UNFCCC (signed on 11 June, 1992; ratified on 29 October, 1996)
- Party to the Kyoto Protocol (signed on 11 December, 1997; ratified on 4 February, 2004; came into force on 16 February, 2005)
- Not EU Member State
- Climate change – related tasks' performance
  - responsibility of Minister of the Environment



Ukraine's climatic conditions

Ukraine is located in the centre of Europe. Thus, it is natural that the formation of its climate is influenced by not only by the global climate, but also by the factors and conditions characteristic of the climate of Western and Eastern Europe.

Ukraine's territory lies in the temperate belt, which covers all the plain part of the country, the Ukrainian Carpathians and the Crimean Mountains.

The plain part of Ukraine's territory lies within two climatic regions. The region of Atlantic-continental forest climate covers the native zones of mixed and broad-leaved forests as well as the forest-steppe zone. Predominant here are the air currents from the Atlantic, which become gradually transformed into temperate continental.

The steppes, including those of the Crimea, belong to the Atlantic-continental steppe region. The climate of this region is the driest and most continental.

The climate of the Ukrainian Carpathians changes from mild sub-mountain to that of the alpine meadows. The most notable here is the climate of the Transcarpathian Lowland protected from the North and the North-East by the mountain ranges of the Carpathians. Frequent southern cyclones bring a lot of warmth and moisture to this region.

The variations of Atlantic-continental forest climate can be seen in the Crimean Mountains; the climate of mountain meadows can be observed in the high-mountain areas. The southern slopes facing the Black Sea are extremely influenced by the latter, particularly, as regards the distribution of precipitation and the occurrence of foehns (winds blowing from the mountains).

The narrow coasts of the Black Sea and the Sea of Azov (within the area of breeze extension) have a coastal climate. The southern coast of Crimea shows the features of the Mediterranean climate, i.e. a warm damp winter, a sunny and dry summer and a continuously warm autumn.

Changes and fluctuations of regional climate

The scientific research demonstrates that the Earth climate was more than once subject to change. According to a chronicle, it was so warm in the central part of Ukraine in the 9th-11th centuries that grapes used to ripen here and the thermophytes of the southern latitudes used to grow. From the end of the 15th century to the middle of the 19th century the climate became colder. That is why that the period is known as the Little Ice Age.

From the end of the 19th century to the beginning of the 21st century the global air temperature (the global average) increased by 0.6°C and that beyond the tropic latitude – by 0.8°C. For several decades the temperature rose on average by 0.046°C, whereas over the last thirty years this rate became twice as large.

The research results show different dynamics of change in annual air temperature for various geographical regions of Ukraine and various seasons. For a century period, the temperature in the forest and forest-steppe zones increased by 0.7 – 0.9°C, and in the steppe zone – by 0.2 – 0.3°C. In the winter season the warmth index is 1.2°C, in spring – 0.8°C, in autumn and summer the changes are insignificant.

Analysis of the global and regional temperatures by decades, precipitation rates and frequency of heavy rains leads to the following conclusion: in the period of the maximum warmth of the global climate (recent decades), an increase in the frequency of large precipitation events - more than 20 mm per day – could be observed.

Weather and climatic anomalies will be characteristic of the climate of the country in the future. Provided the global climate retains the current condition for the another 2 decades of the 21st century, it can be claimed that the climate of Ukraine will keep the features of the regional climate of the second half of the 20th century, involving the possible risk of natural disasters.

PART III

PART II MAIN AUDIT FINDINGS

II 1. CLIMATE CHANGE OBSERVATION

In Article 4 (1) (g) and Article 5 of the Climate Convention and in Article 10 (d) of the Kyoto Protocol, the States – Parties to these agreements committed themselves, inter alia, to cooperate in the performance of systematic observations and the development of data archives related to the climate system as well as to support and develop international and intergovernmental programmes and networks aimed at defining, conducting, assessing and financing research and data collection.

In the audited period, observations on climate variables were carried out by meteorological services and research institutions supervised by the Ministers responsible for the environment, excluding Israel, the former Yugoslav Republic of Macedonia, the Russian Federation and Switzerland. In ***Israel***, the Meteorological Service was in the Ministry of Transportation. In the ***former Yugoslav Republic of Macedonia***, the Hydro Meteorological Directorate operated within the Ministry of Agriculture, Forestry and Water Economy. In the ***Russian Federation***, the organization of the scientific supervision and estimation of economic and ecological losses fell within the competence of the Federal Service on Hydrometeorology and Environmental Monitoring, subordinated to the Ministry of Natural Resources and Ecology of the Russian Federation (the authorised body) and the Academy of Sciences of the Russian Federation. In ***Switzerland***, the Swiss GCOS Office at the Federal Office of Meteorology and Climatology MeteoSwiss was responsible for coordinating climatological observations carried out by federal offices, research institutes and universities.

Azerbaijan	The National Hydrometeorological Department of the Ministry of Ecology and National Resources of the Republic of Azerbaijan Director of the Department, the governing board and heads of hydrometeorological stations.
Cyprus	The Meteorological Service Department (MSD) of the Ministry of Agriculture, Natural Resources and Environment (MANRE), The Water Development Department (WDD), The Geological Department, The Department of Labour Inspection (DLI) of the Ministry of Labour.
Denmark	The Danish Ministry of Climate and Energy, The Danish Ministry of the Environment, The Danish Energy Agency, The Danish Environmental Protection Agency (EPA) The Danish Meteorological Institute (DMI), The National Environmental Research Institute, GEUS – The Geological Survey of Denmark and Greenland.
Estonia	Estonian Meteorological and Hydrological Institute of the Ministry of Environment.
Israel	The Meteorological Service in the Ministry of Transportation.
The former Yugoslav Republic of Macedonia	The Hydro Meteorological Directorate within the Ministry of Agriculture, Forestry and Water Economy.
Poland	The Institute of Meteorology and Water Management (IMGW), The Inspection for Environment Protection, The Institute of Geophysics of the Polish Academy of Sciences,

Poland	The Institute of Oceanology of the Polish Academy of Sciences, The Institute of Environmental Protection, 10 Universities, 2 National Parks.
Russia	The Federal Service of Hydrometeorology and Environmental Monitoring, which is subordinated to the Ministry of Natural Resources and Ecology of the Russian Federation; The Institute of Global Climate and Ecology and its 16 scientific research organisations, Other scientific organisations of different federal ministries; The Academy of Sciences of the Russian Federation.
Switzerland	The Federal Office of Meteorology and Climatology MeteoSwiss, The Swiss GCOS Office at the Federal Office of Meteorology and Climatology, The National GCOS Round Table, Federal offices, research institutes and universities.
Ukraine	The Ministry for Emergency Situations and Protection of the Population from the Consequences of the Chernobyl Accident of Ukraine The State Hydrometeorological Service, including 7 research institutes and 23 hydrometeorological centres The National Academy of Sciences of Ukraine The Ukrainian Scientific-Research Hydro-Meteorological Institute.

All the States of the cooperating Supreme Audit Institutions (SAIs) established a climate observation system and carried out such observations.

Establishing of the organisational system for climate change observation	**AZ**	**CY**	**DK**	**EE**	**IL**	**MK**	**PL**	**RUS**	**CH**	**UA**
				Not audited						

The provisions are implemented The provisions are partly implemented The provisions are not implemented

II 1.1. CLIMATE CHANGE INDICATORS TESTED

The scope of the climate change research carried out in the individual States was different, depending, among others, on their geographic location.

Azerbaijan	The scope of research: temperature, precipitation and the number of sunny days. Frequency of measurements: every 5-10 years on the basis of 3 indicators.
Cyprus	The scope of research: temperature, humidity, pressure, direction and speed of wind, height and type of clouds, rainfall and sunshine, upper-air observations, solar radiation. Observations were carried out by two meteorological offices at two airports, three synoptic stations, a radiosonde station, an actinometric station, 40 climatological stations, 20 automatic weather stations, 150 precipitation stations and 36 rain recording stations, a meteorological radar and a principal ground satellite receiving station. Depending on the type of the station, measurements were carried out every hour or twice daily.

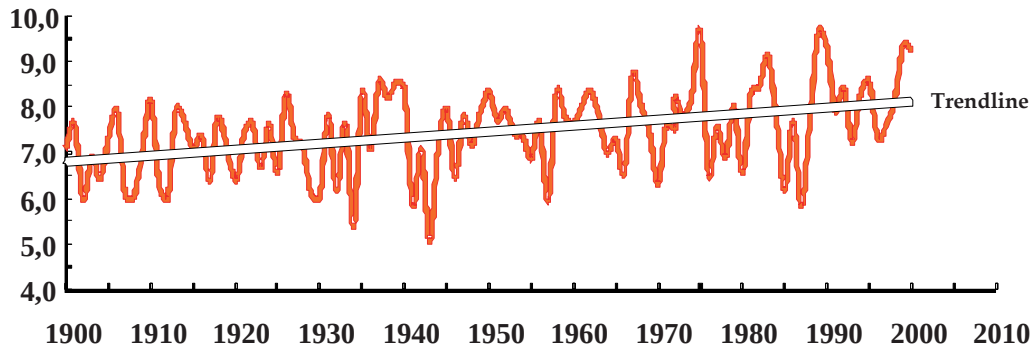
Denmark	The scope of research: atmospheric concentration of CO_2, global and national mean temperature, pollen season, CO_2 emission per capita, gross emissions of GHG - CO_2, N_2O, CH_4, HFC, PFC and SF_6, accumulated CO_2, gross emissions per unit GDP, net emissions, gross emissions per sector: businesses, transport, households, agriculture and waste. For prediction purposes, the following was tested: sea surface temperatures, snow and ice cover, precipitation, air temperature, wind, mean water level and extreme weather conditions. The number of measurement stations and the frequency of measurements: precipitation intensity (1 minute): 79 stations; precipitation sum (10 minutes): 40 stations; precipitation sum (24 hours): 496 stations; temperature, relative humidity, wind and air pressure (10 minutes): 70 stations; radiation and sunshine (10 minutes): 24 stations; water temperature and water level (10 minutes): 15 stations.
Estonia	The scope of observations: air temperatures, wind speed, precipitation, air pressure, humidity, solar radiation, annual snow cover, water level and temperatures.
Israel	The scope of research: temperature, humidity, rainfall, barometer pressure, wind speed and direction, solar radiation, cloudiness and visibility. Observations were carried out at 93 meteorological stations, 101 automatic rainfall meters, which measured the amounts that fell over brief periods of time, 368 rainfall meters which measured the amount of rain at a set time once a day and 53 rainfall cisterns which measured annual rainfall, at the end of the rainy season.
The former Yugoslav Republic of Macedonia	The scope of research: air temperature, humidity, precipitation, air pressure, cloudiness, wind, sunny days, snowfall, and atmospheric events. Observations were carried out at 34 meteorological stations in 3 climatological periods (07.00,14.00, 21.00 hours local time) - hourly measurements according to CET.
Poland	The scope of research: air temperature, air pressure, humidity, wind speed and direction, precipitation, state of the ground, snow cover depth, fresh snow cover depth, snow type and snow cover shape, water content in snow cover, horizontal visibility, height of cloud base, cloud amount and cloud shape, atmospheric events, sunshine duration, radiation balance components, vertical atmospheric sounding to a height exceeding a distance of 30 km from the Earth surface, important oceanic climate variables, atmospheric climate variables, continuous carbon dioxide measurements at one station. Continuous measurements were carried out at 2,320 hydrological and meteorological stations, whereas atmospheric climate variables were tested 24 times a day.
Russia	The scope of research: air temperature, precipitation, snow cover, solar radiation, agroclimatic conditions (temperature regime parameters, moistening regime), the number of dangerous meteorological phenomena, the content of greenhouse gases and aerosols in the atmosphere. The observations were based on the data from 1,383 stations in the world (455 of them were located in the territory of the Russian Federation and the adjacent countries, whereas 310 of them were in Russia). Frequency of climate parameter observations: monthly, seasonal (4 seasons a year) and annual. Averaging was done by region and across the entire territory of the Russian Federation. Northern polar area, including the Arctic Seas has been especially studied.
Switzerland	The scope of research encompassed the reconstruction of past climate, the development of procedures for seasonal forecasting, the study of key physical, chemical and ecological processes, and the impact of climate risks on the economy and society. Observations were carried out at 29 climate stations recording different parameters and 46 precipitation stations. Time series of temperature, precipitation and sunshine duration of the Swiss NBCN stations date partially back to the middle of the 19th century.

Ukraine	The scope of research covered: meteorological terrestrial observations - 499 stations; upper-air observations - 9 stations; hydrological observations on rivers, lakes and water reservoirs - 433 stations; hydrological observations on sea - 34 stations; aviation meteorological observations - 34 stations; meteorological radar observations - 7 stations; actinometric and thermal balance observations - 22 stations; agricultural meteorological observations - 141 stations; ozonometric observations and solar ultraviolet observations - 5 stations; specialized observations on water balance, mud torrents and snow slides; observations on chemical contamination of atmospheric air - 53 cities/towns, 162 stations; observations on atmospheric precipitation pollution - 32 stations; observations of acid-base balance of atmospheric precipitation - 50 stations; observations on snow cover pollution - 54 stations; observations on cross-boundary atmospheric pollution - 2 stations; observations on surface waters quality - 127 rivers, 15 water reservoirs, 7 lakes, 240 stations; observations of marine water pollution - 97 stations; soil contamination observations - 35 administrative districts; observations on radioactive contamination of the environment - 284 stations. Observations on meteorological parameters were made every three hours in the case of hand measurements and every 15-30 min. when using computer-aided stations; on hydrological parameters (water levels) – twice a day, in case of floods – every two-four hours.

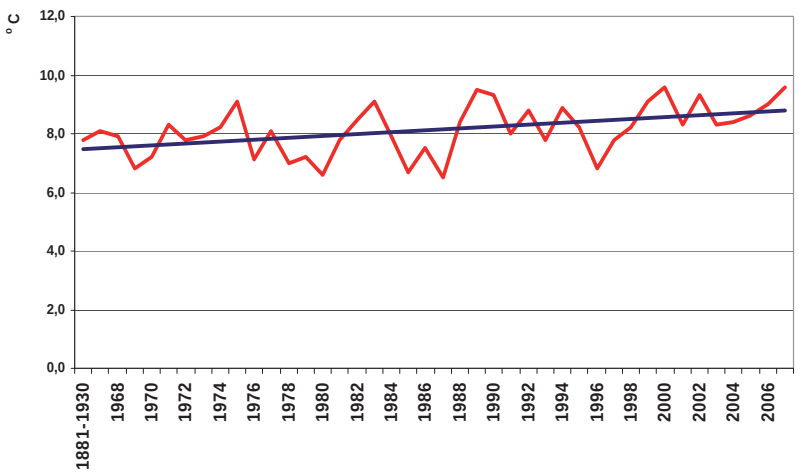
In all the States of the Cooperating SAIs, the basic climate variables were tested, including temperature, precipitation and the number of sunny days. In 9 States, observations were also carried out on other variables, including humidity, pressure, wind direction and speed, height and type of clouds, solar radiation, snow cover, glaciers and permafrost. Climate change observations were carried out on the basis of data from domestic and foreign stations.

The results of the observations made demonstrated air temperature variations over the last 100 years, as illustrated by the following figures:

Recorded temperatures in Kyiv, Ukraine



Recorded temperatures in Warsaw, Poland



II 1.2. ANALYSIS AND INTERPRETATION OF MEASUREMENT RESULTS

In all the States of the Cooperating SAIs, analyses and interpretations of measurement results were carried out. This work was mostly done by meteorological services. In ***Azerbaijan***, temperature, precipitation and solar radiation were estimated for testing stations and the country at different time intervals. In ***Cyprus***, with a database on temperature and precipitation over 100 years, using time series analysis and statistical models, the Meteorological Service observed an increase in the average temperature of 0.8°C and a reduction in average yearly rainfall from 560 mm to 460 mm (17%). In ***Denmark***, scenario models from the IPCC were used to forecast climate change - the analysis of data from 1961 – 1990 served as the basis for forecasts for 2071–2100. In ***Israel***, the Meteorological Service was responsible for analyzing measured data for climate change monitoring purposes. However, most of statistical analyses were not carried out due to the need for statistical homogenisation of data series. In the ***former Yugoslav Republic of Macedonia***, analyses were carried out by the Hydro Meteorological Directorate; in ***Poland***, by the Institute of Meteorology and Water Management and the Institute of Environmental Protection; in ***Russia***, analyses of measurement results were carried out by the Federal Service of Hydrometeorology and Environmental Monitoring, the Institute of Global Climate

and Ecology and 16 scientific research organisations and Russian Academy of Science, and in ***Switzerland***, by the National Centre of Competence in Research on Climate (NCCR Climate), a scientific network established in 2001 and bringing together 130 researchers from 13 partner institutions. In ***Ukraine***, the climate change observation data were gathered, analysed and estimated at the Central Geophysical Observatory and the Ukrainian Scientific-Research Hydro-Meteorological Institute, by the Institute of Meteorology and Water Management and the Institute of Environmental Protection.

Box No 1 [The preparation of "Environmental Indicators" in the former Yugoslav Republic of Macedonia]

In 2008, in the former Yugoslav Republic of Macedonia the document Environmental Indicators was prepared, covering a wide range of quantitative data obtained through scientific measurements and analyses, as well as designated sources, causes, consequences and trends of specific conditions in the country. These indicators were developed in consultation with the EEA and EEA Member States. This document included useful tools for a wide range of experts, potential investors and management structures in the field of environment protection at all levels - national and local. This type of report was a database for many environmental areas - air pollution, nature and biodiversity, climate change, soil, waste, water, agriculture, energy, fisheries, transport, health, tourism etc. The indicators were presented in an easy to understand way, on www.moepp.gov.mk.

	AZ	CY	DK	EE	IL	MK	PL	RUS	CH	UA
Performing of analysis and interpretation of measurement results				Not audited						

The provisions are implemented

The provisions are partly implemented

The provisions are not implemented

II 1.3. PUBLICATION OF RESULTS OF CLIMATE-CHANGE RELATED OBSERVATIONS AND FORECASTS

All the States which participated in the audit published information on the results of climate change research, mostly on the basis of data from meteorological services. These data were published in the form of reports of government agencies and statistical reports and they were placed on the websites of the competent government institutions or meteorological services. In ***Azerbaijan***, short-term forecasts of the hydrometeorological situation were published daily and forwarded to the institutions concerned. In ***Cyprus***, the Meteorological Service published reports and studies on weather and climate which were used among others by agricultural sector, the Water Development Department for the conservation and management of water reserves etc. In ***Denmark***, the results of climate-change related observations and forecasts were published by the Danish Meteorological Institute on its homepage, in scientific and technical reports as well as in the Danish Climate Centre reports every month. In ***Israel***, data on observed climate change served, among other things, as the basis for examining the potential influences of climate change on the environment and the economy. Such data were published in 2008 by the Chief Scientist of the Ministry of Environmental Protection. In the ***former Yugoslav Republic of Macedonia***, annual meteorological reports were placed on the Internet. In ***Poland***, the results of climate-change related observations were published in the National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change, in the monthly bulletin of the Institute of Meteorology and Water Management and in the information bulletins of the Institute of Environmental Protection. In ***Russia***, the publications included e.g. "Status and Tendencies in the Climate

Change Observations and Projects: Review" – edited quarterly, the annual reports "Specific Climate Features in the Territory of the Russian Federation" and the "Assessment of the Climate Change and Relevant Consequences in the Territory of the Russian Federation" for 2008. Additional information was provided on websites as well as in publications, bulletins and scientific journals.

Box No 2 [Assessment Report on Climate Change and its Impacts in the Russian Federation]

In April 2009, the Assessment Report on Climate Change and its Impacts in the Russian Federation was drawn up in Russia and covered the period within 1990 to 2007. On the basis of monitoring data and results of scientific research, it assessed the observed and expected climate change and its impacts. This Report was an essential part of the database required for developing national and international climate policies. Its preparation made it possible e.g. to carry out an objective and complete assessment of observed and forecast climate change and also served for the development of systems for early detection and forecasting of extreme hydro-meteorological events.

In ***Switzerland***, the Federal Office of the Environment operated a homepage, where it placed the Swiss GHG inventories and the reports submitted to the UNFCCC Secretariat. In ***Ukraine***, climate change observation data were published in the Climate Cadastre of Ukraine. The results of investigations on regional climate change in Ukraine were summarised in the monograph "Climate of Ukraine".

Publication of results of climate-change related observations and forecasts	AZ	CY	DK	EE	IL	MK	PL	RUS	CH	UA
				Not audited						

The provisions are implemented

The provisions are partly implemented

The provisions are not implemented

II 1.4. INTERNATIONAL COOPERATION IN THE FIELD OF CLIMATE CHANGE OBSERVATIONS

The meteorological services of all the States of the Cooperating SAIs were involved in an international exchange of climate data.

Azerbaijan reported research results from 6 stations in the country every month. In ***Cyprus***, the Meteorological Service Department (MSD) exchanged climate information with meteorological institutes abroad. For example, its cooperation with the Meteorological Institute of Greece included an online connection and an exchange of data on a common weather forecasting area. The MSD submitted annual reports to the Global Precipitation Centre in Germany, delivered every hour weather data to the European Weather Centre (EWC) and used the information processed by this Centre. The MSD staff attended various training courses abroad in the fields of Information Technology, forecasting, the use of the climate database system and the application of the climate model PRECIS. In ***Denmark***, the Danish Climate Centre collaborated in national and international research projects and provided data to the Intergovernmental Panel on Climate Change (IPCC), the World Meteorological Organisation (WMO) and the European Centre for Medium-Range Weather Forecasts (ECMWF) for the purposes of HIRLAM (High Resolution Limited Area Model). ***Israel*** participated in

several projects linked to climate change, in the framework of the World Meteorological Organisation, e.g. in a project to save the data of Mediterranean countries and in another project to provide data for running a solar-powered meteorological station. Israel belonged to the European region of the World Meteorological Organisation and the Director of the Meteorological Service was the country's representative to the IPCC. The First and Second Reports on Climate Change in the ***former Yugoslav Republic of Macedonia*** were drawn up and the country cooperated in the framework of the World Meteorological Organisation. In ***Poland***, the Institute of Meteorology and Water Management and the Institute of Environmental Protection participated e.g. in the Global Climate Observing System, in the work under several international programmes co-coordinated by the WMO, e.g. the World Climate Research Programme, in the global programme to save archival data (value digitalisation and material scanning) in cooperation with the German Weather Service (DWD), in the GEMS project[1], in the ACCENT project[2] and in activities in the framework of the Scientific Research Network AIRCLIM-NET[3] – the purpose of the Network was to consolidate the scientific and research capacity in this thematic area. In ***Russia***, international cooperation was conducted by the Federal Service of Hydrometeorology and Environmental Monitoring (Rosgidromet). In ***Switzerland***, 8 stations of the Swiss National Basic Climatological Network operated within 2 international climatological networks: GSN – the GCOS Surface Network and RBCN – the Regional Basic Climatological Network. ***Ukraine*** was one of the founding members of the World Meteorological Organisation (WMO) in 1948. Specialists of the hydrometeorological service were the members of the WMO technical commissions, i.e.: commission for basic systems, commission for instruments and methods of observation, commission for atmospheric sciences, commission for aeronautical meteorology, commission for agricultural meteorology, commission for climatology, commission for hydrology and commission for oceanography and marine meteorology. The hydrometeorological service of Ukraine participated in the WMO programs, such as Atmosphere Research and Environment Program (AREP), World Weather Watch Program (WWWP), Hydrology and Water Resources Program (HWRP). Information from 38 meteorological and 8 upper-air stations were constantly submitted to the Global Telecommunication System of the World Meteorological Organisation.

International cooperation in the field of climate change observations	AZ	CY	DK	EE	IL	MK	PL	RUS	CH	UA
				Not audited						

The provisions are implemented

The provisions are partly implemented

The provisions are not implemented

II 1.5. SOURCES OF CLIMATE CHANGE OBSERVATION FUNDING

In all the States of the Cooperating SAIs, climate change observations were funded with financial resources from the state budget. Moreover, in ***Cyprus***, due to its participation in various international programmes, the Meteorological Service managed to be partially financed by the European Union and other international organisations, to the extent of their participation in these programmes. In the ***former Yugoslav Republic of Macedonia***, UNDP funds were used. In ***Poland***, in addition to the resources from the state budget, funds from the National Fund for Environmental Protection and Water Management were spent, whereas in ***Switzerland*** scientific research was supported by the Swiss National Science Foundation.

II 2. CLIMATE CHANGE MITIGATION

Under Article 3 (1) of the Kyoto Protocol to the United Nations Framework Convention on Climate Change,

1. Global and Regional Earth-System Monitoring

2. Atmospheric Composition Change: The European Network.

3. Air Pollution and Climate Thematic Network.

in order to reduce in 2008 – 2012 their anthropogenic emissions of the greenhouse gases listed in Annex A by at least 5 percent below the emission levels in 1990, the Parties included in Annex I of the UNFCCC committed themselves to ensure, individually or jointly, that their aggregate emissions of these gases would not exceed their assigned amounts, calculated in accordance with the provisions of this Article and pursuant to the quantified emission limitation and reduction commitments of these Parties as set out in Annex B.

Under Article 4 (2) of the United Nations Framework Convention on Climate Change, the Parties to the Convention were obliged to adopt national policies and take the measures on the mitigation of climate change by limiting their anthropogenic greenhouse gas emissions and protecting and enhancing their sinks and reservoirs of these gases with the aim of returning to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol. Moreover, the Parties were obliged to periodically communicate information on these policies and measures as well on projected anthropogenic greenhouse gas emissions by sources and their removals by sinks.

II 2.1. ORGANISATION

In the States of the Cooperating SAIs, the national system for climate change mitigation comprised Ministries/Offices responsible for the environment, industry, energy and transport as well as their subordinate government agencies and institutions. In most countries, the supervising authority was the Ministry responsible for the environment. The system also included industrial plants which emitted greenhouse gases; e.g. in Switzerland, in order to effectively protect the climate, industry established on a voluntary basis the Climate Cent Foundation, an operational body for climate protection.

Country	Main actors of the system for climate change mitigation
Azerbaijan	Ministry of Ecology and National Resources Ministries of Industry and Energy National Authoritative Body on the Clean Development Mechanism of the Kyoto Protocol
Cyprus	Ministry of Agriculture, Natural Resources and Environment (MANRE) Ministry of Commerce, Industry and Tourism Fund for Promoting Energy Conservation and the Utilisation of Renewable Energy Sources Transmission System Operator Ministry of Communications and Works Ministry of Interior
Denmark	Ministry of Climate and Energy Sector specific ministries
Estonia	Ministry of the Environment
Israel	Ministry of Environmental Protection Ministry of National Infrastructures Ministry of Transportation Ministry of Agriculture Ministry of Industry and Commerce A committee composed of representatives of the Ministries of Environmental Protection, Finance, National Infrastructures, Transportation, and Industry and Commerce
The former Yugoslav Republic of Macedonia	Ministry of Environment and Physical Planning Ministry of Economy Energy Agency Regulatory Commission Ministry of Transport and Communications Ministry of Agriculture, Forestry and Water Economy

Country	Main actors of the system for climate change mitigation
Poland	Ministry of the Environment Ministry of Economy Ministry of Infrastructure Ministry of Foreign Affairs Ministry of Agriculture and Rural Development Institute of Environmental Protection Institute of Meteorology and Water Management Forest Research Institute State Forest Holding "State Forests" Inspectorate for Environmental Protection
Russia	Federal Service of Hydrometeorology and Environmental Monitoring (Rosgidromet) Ministry of Natural Resources and Ecology of the Russian Federation Ministry of Economic Development of the Russian Federation Ministry of Energy of the Russian Federation Ministry of Industry and Trade of the Russian Federation Ministry of Transport of the Russian Federation Ministry of Agriculture of the Russian Federation Ministry of Regional Development of the Russian Federation Federal Service for State Statistics Federal Service of Ecological, Technological and Atomic Supervision Accounts Chamber of the Russian Federation
Switzerland	Federal Office of the Environment (FOEN) Swiss Federal Office of Energy (SFOE) Climate Cent Foundation Federal Office of Spatial Development (ARE) Cantons
Ukraine	Ministry for Natural Environment Protection of Ukraine National Environmental Investments Agency of Ukraine Ministry of Economy of Ukraine Ministry of Finance Ministry of Fuel and Energy Ministry of Industrial Policy Ministry of Agrarian Policy Ministry of Justice Ministry of Health Ministry for Housing and Communal Services Ministry for Regional Development and Building Ministry for Coal Mining State Forestry Committee of Ukraine National Academy of Sciences of Ukraine

II 2.2. GHG EMISSIONS

Among the 10 States of the Cooperating SAIs, 4 States: Azerbaijan, Cyprus, Israel and the former Yugoslav Republic of Macedonia were not included as Parties in Annex I to the UNFCCC, nor in Annex B to the Kyoto Protocol; therefore, they were not obliged to achieve quantified GHG emission reductions.

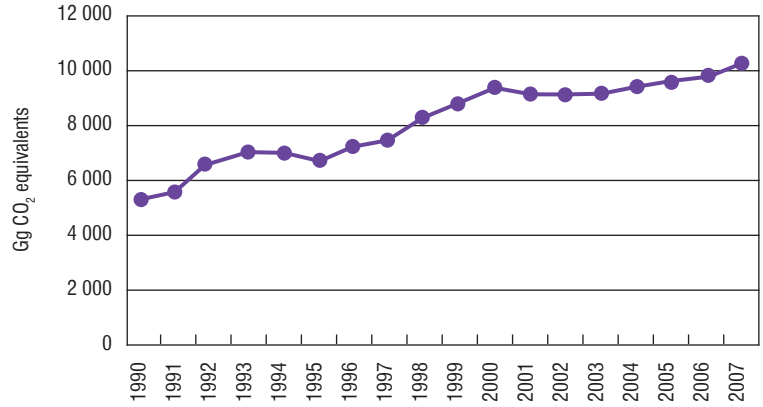
The greenhouse gas emission levels in the audited countries in 2006 – 2008 amounted to:

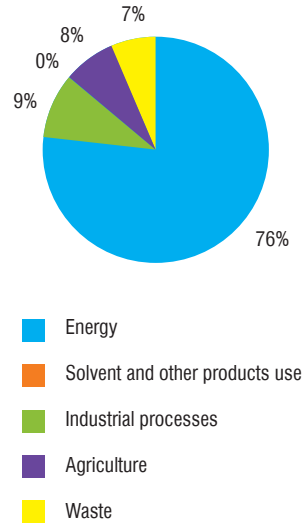
Country	Greenhouse gas emissions [Gg CO_2eq]							Emission reduction in 2007 relative to base year (incl LULUCF) [%]	Emission reduction in 2007 relative to base year (excl LULUCF) [%]
	Base year		2006 (incl LULUCF)	2006 (excl LULUCF)	2007 (incl LULUCF)	2007 (excl LULUCF)	2008		
	(incl LULUCF)	(excl LULUCF)							
AZ		68 267.0 (1990)		48 044.0		43 728.0	Data not available yet		35.9
CY	5 448.0	5466.9 (1990)	9 824.5	9 972.5	9 972.2	10 129.0		-80.3	-85.3
DK	70 964.8	70 413.6	71 624.3	72 499.6	66 964.5	68 092.1		5.6	3.3
EE	35 567.3 (1990)	41 935.4 (1990)	10 245.6	19 179.7	14 115.6	22 018.7		60.3	47.5
IL				74 700.0		76 800.0			
MK		14 318.0 (2000)							
PL	531 778.8 (1988/95)	564 705.3 (1988/95)	360 560.3	401 065.1	361 062.9	401 560.0		32.1	28.9
RU		3 323 419.1 (1990/95)		2 185 883.3		2 192 818.1			34.0
CH	50 369.0 (1990)	52 709.0 (1990)	54 250.0	53 173.0	50 617.0	51 265.0		-0.49	2.74
UA	852 900.0 (1990)	926 000.0 (1990)	401 500.0	436 800.0	392 500.0	436 000.0		54.0	52.9

The greenhouse gas emissions in the 4 States of the Cooperating SAIs, calculated as CO_2 equivalent in the period from the base year to 2007, were as follows:

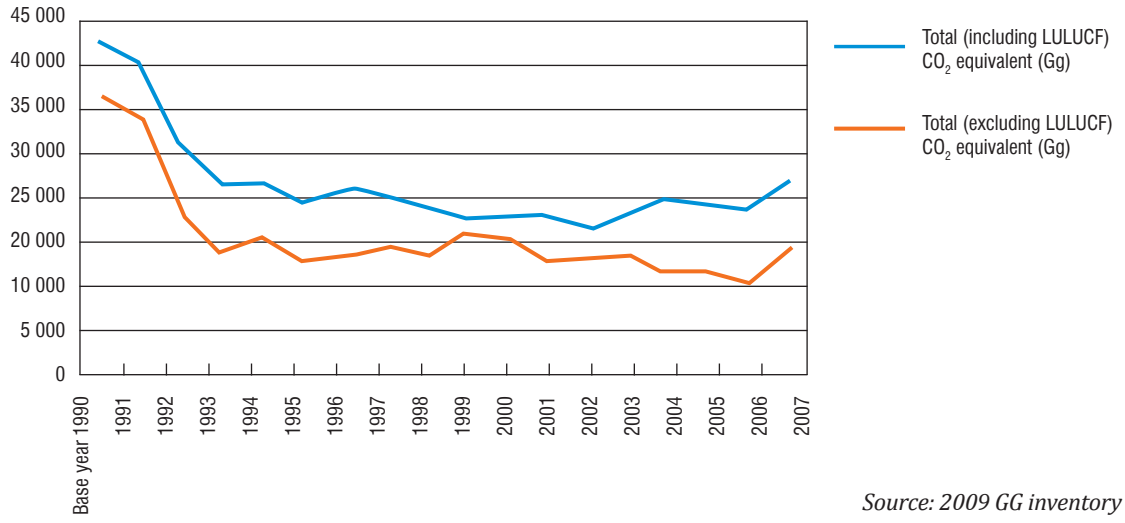
Cyprus

Total emissions without LULUCF 1990 to 2007 in CO_2 equivalents (Gg) and share of source categories in 2007



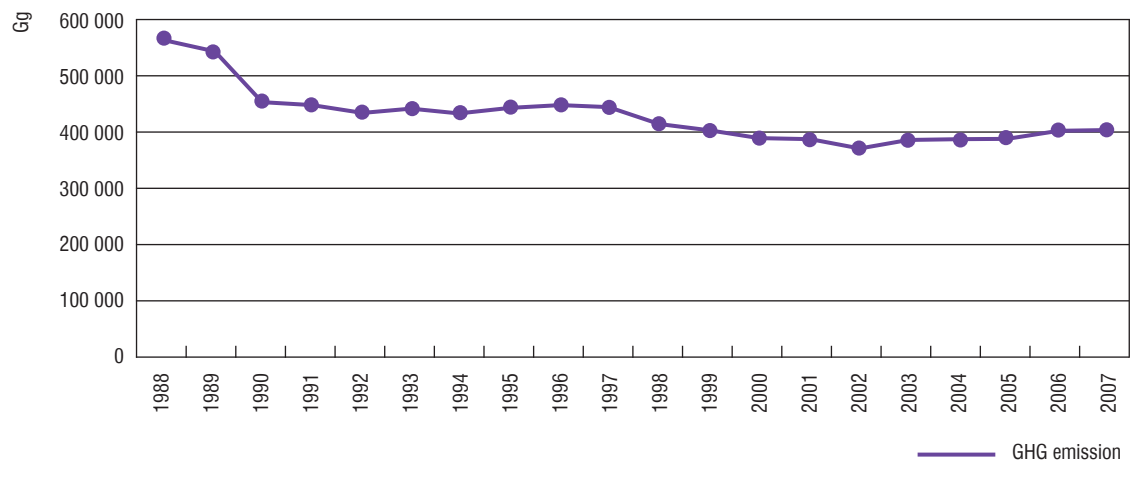


Estonia

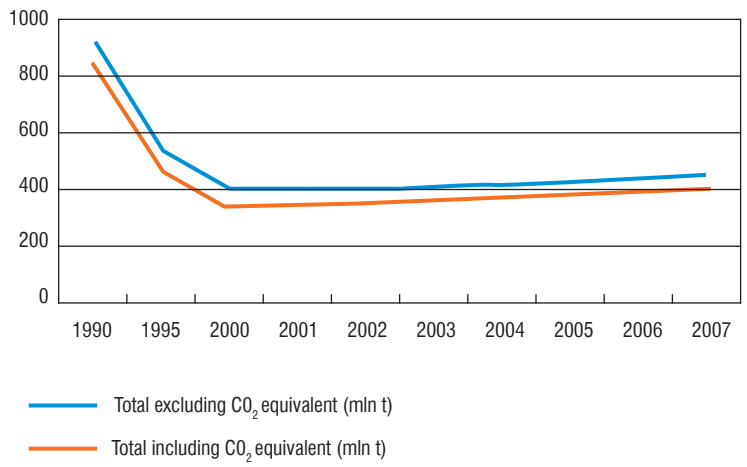


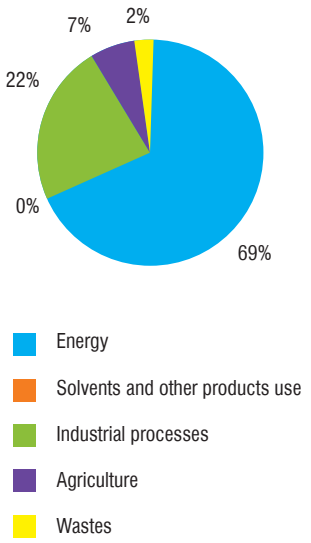
Source: 2009 GG inventory

Poland



Ukraine





The overwhelming majority of the participating countries had reduced their emissions with respect to their base year. Comparison of the greenhouse gas emission levels in 2007 with those in the base year indicated that the greatest reduction level had been achieved by Ukraine – 52.9% (excl LULUCF) and the least by Switzerland – 2.74% (excl LULUCF). In Cyprus the greenhouse gas emissions had grown by 85% (excl LULUCF).

The emission levels per capita in the individual countries were as follows:

Country	Greenhouse gas emissions per capita [Mg CO_2 eq]	
	2006	2007
Azerbaijan	5.69	5.12
Cyprus	13.48	13.54
Denmark	12.00	10.00
Estonia	14 26	16.40
Israel	10.60	10.70
The former Yugoslav Republic of Macedonia	5.30	4.06
Poland	10.52	10.54
Russia	15.37	15.44
Switzerland	7.00	6.73
Ukraine	8.60	8.50

It follows from this table the highest emission level per capita occurred in Estonia, whereas the lowest one could be found in the former Yugoslav Republic of Macedonia.

II 2.3. GOVERNMENTS' SCENARIOS AND STRATEGIES FOR GHG EMISSIONS REDUCTIONS AND THE RELATED TASKS

Emission reduction scenarios and strategies

In ***Azerbaijan***, the national strategies and assessments contained reduction forecasts in the areas of:

- Processing, delivery and distribution of natural gas: a decrease in CO_2 emissions by 590.0 million tonnes over 20 years;
- Oil sector: a decrease in CO_2 emissions by 0.138 million tonne/year;
- Accumulation of associated gas in oil production: a decrease in greenhouse gas emissions by 35 million tonnes or 1.4 million tonnes/year;
- Oil processing: a decrease in greenhouse gas emissions by 0.466 million tonne over 20 years;
- Transport: a decrease in greenhouse gas emissions by 0.466 million tonnes;
- Communal sector: a decrease in greenhouse gas emissions by 4.0 million tonnes over 20 years;
- Restoration of the central electric system: a decrease in greenhouse gas emissions by 12 million tonnes over 20 years;
- Application of control and measurement equipment: a decrease in greenhouse gas emissions by 102.4 million tonnes over 20 years;
- Agriculture: energy recovery from dry mass remainders of agricultural products – a decrease in greenhouse gas emissions by 30.0 million tonnes over 25 years; biogas recovery from manure – a decrease in greenhouse gas emissions equal to 1.374 million tonnes of conditional fuel over 25 years, a decrease in greenhouse gas emissions by 0.938 million tonnes over 25 years and the amount of biomass in forestry equal to 2-4 million tonnes/year;
- Wastes: processing of wastes deposited at landfills – a decrease in greenhouse gas emissions by 41,469 million tonnes over 25 years; methane recovery from wastewater – a decrease in greenhouse gas emissions by 10.5 million tonnes over 25 years.

Cyprus was neither an Annex I Party to the UNFCCC nor an Annex B Party to the Kyoto Protocol and, therefore, in Cyprus no national legislation had been enacted to provide for quantified targets for reducing GHG emissions. The potential reduction in emissions due to partial or full implementation of the measures/policies was calculated as per Article 3(2)(v) of Decision 280/2004/EC. The last report submitted in May 2009 provided projections of GHG emissions under three scenarios, as defined in Article 10 of Decision 166/2005. Future emissions were estimated for a "business as usual" scenario (excluding implemented, adopted and planned policies and measures), projections "with measures" (including implemented and adopted policies and measures) and projections "with additional measures" (including planned policies and measures).

In ***Denmark***, GHG emission reduction scenarios for 2020 and 2050 were prepared in February 2008. Seven scenarios were analysed. All the scenarios assumed the same economic growth rate (approx. 1.9 per cent p.a.) and the same increase in the demand for energy services. Increased use of renewable energy and improved efficiency and energy savings were the central measures in the reference scenarios and the reduction scenarios.

In the "Report pursuant to Article 3(2) of the Monitoring Decision" (published on 13 March 2009) three scenarios were presented for ***Estonia***: "With Measures (WM), "With Additional Measures (WAM)" and "Without Measures (WOM)".

In 2001, the Government of ***Israel*** assigned the task of setting goals for reducing greenhouse gas emissions to the inter-ministerial committee for climate change, headed by the Ministry of Environmental Protection. The Ministry then requested outside experts to propose a national plan for greenhouse gas reduction. The proposal submitted in September 2001 described in detail the policy measures for reducing greenhouse gas emissions in the fields of energy, industry, transportation, dwellings and commerce, but the committee did not establish goals for emission reduction. In May 2007, the Ministry of Environmental Protection began pre-

paring a working paper examining the readiness of Israel to reduce greenhouse gas emissions for the post-2012 period.

The estimated GHG emissions for all the sectors of the ***former Yugoslav Republic of Macedonia*** were integrated in order to project the total national GHG emissions over the period 2008 – 2025, following the three scenarios: the baseline (Business As Usual – BAU), first mitigation and second mitigation scenarios. The first mitigation and second mitigation scenarios differed only in the projections for the electricity sector, as the second mitigation scenario incorporated additional emission reduction measures, which would make a considerable contribution to the overall reduction of GHG emissions.

Box No 3 [The preparation of the Second National Communication on Climate Change in the former Yugoslav Republic of Macedonia]

The Second National Communication on Climate Change presented detailed analyses, estimations, scenarios for vulnerability and risks in the sectors that were major emitters of GHG emissions. The impacts and effects of temperature and precipitation variations were determined and adaptation measures were given. The institutional problems, measures, activities, institutional responsibilities, the timeframe for taking action and the budget for its implementation were identified. A specific implementation timetable for 2008 - 2015 was determined for various activities. Due to the near-future timeframe for implementation of these activities, they presented a good basis for a future performance audit with the aim of establishing the extent of implementation of adaptation measures, the funds spent for their implementation and the measurable effects of their implementation.

Following the guidelines of the UNFCCC, two projection scenarios were developed for GHG emissions in ***Poland***: "with measures" and "without measures" for the years: 2005, 2010, 2015 and 2020. The key scenario was the "with measures" scenario, in which currently implemented policies and measures were accounted for. Both scenarios were elaborated in accordance with the requirements for national GHG inventories following methodologies presented in the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories and in Good Practice Guidance and Uncertainty Management.

In ***Russia***, the Russian Energy Strategy until 2030, the Russian Metallurgical Industry Development Strategy until 2015, the Russian Metallurgical Industry Development Strategy until 2020 and the General Scheme of Power Capacities Installation until 2020 were developed. Price indicators were set for combustion gas amounts and rate-increasing payments for emissions, relevant ratios etc. were introduced.

In ***Switzerland***, greenhouse gas reduction scenarios were provided in Switzerland's Fourth National Communication under the UNFCCC (2005). The latest governments' projections / scenarios for GHG reduction will be published towards the end of the year 2009 in the course of Switzerland's Fifth National Communication under the UNFCCC. Emission scenarios are estimated for a "business as usual" scenario (excluding implemented, adopted and planned policies and measures), projections "with measures" (including implemented and adopted policies and measures) and projections "with additional measures" (including planned policies and measures).

In ***Ukraine***, greenhouse gas emission reduction projections were at the development stage.

Greenhouse gas projections are given below:

Projected greenhouse gas emissions in Gg CO_2 eq											
Base Year		AZ	CY	DK	EE	IL	MK	PL	RU	CH	UA
1988	Without Measures										
	With Measures							586 903.0			
	With Additional Measures										
1990	Without Measures		5 448.0		41 593.0						
	With Measures		5 448.0		41 593.0						
	With Additional Measures		5 448.0		41 593.0						
2005	Without Measures		9 710.0					445 191.9			
	With Measures		9 710.0					381 852.6		50 620.0	
	With Additional Measures		9 710.0								
2008	Without Measures					76 800.0*	14 040.0				
	With Measures						13 904.0				
	With Additional Measures						12 645.0				
2010	Without Measures		11 149.0		17 915.0		9 584.0	472 319.1			
	With Measures		9 603.0		15 960.0		8 093.0	419 993.2		49 780.0	
	With Additional Measures		9 605.0		15 974.0		6 430.0				
2015	Without Measures		14 003.0		19 187.0		11 388.0	492 662.0			
	With Measures		11 587.0	67 800.0	16 376.0		8 784.0	452 760.2			
	With Additional Measures		7 504.0	61 300.0	15 790.0		6 990.0				
2020	Without Measures		16 907.0	60 000.0	19 041.0		13 260.0	517 152.8			
	With Measures		10 155.0	47 000.0	15 615.0		9 428.0	479 026.9		48 300.0	
	With Additional Measures		7 097.0	39 000.0	13 012.0		7 290.0				
2025	Without Measures					118 003.0	23 947.0				
	With Measures					86 300.00	20 348.0				
	With Additional Measures						16 713.0				

*Actual GHG emissions in 2007.

In 8 States of the Cooperating SAIs, greenhouse gas reduction scenarios and emission reduction strategies were drawn up and in 2 States (Israel, Ukraine) efforts were taken to calculate the possible emission reductions.

The parallel audit did not involve an evaluation of the appropriateness of the scenarios and strategies.

Governments' projections/ scenarios for GHG emissions reductions	AZ	CY	DK	EE	IL	MK	PL	RUS	CH	UA
										

 The provisions are implemented

 The provisions are partly implemented

 The provisions are not implemented

Tasks to implement scenarios and strategies

In ***Azerbaijan***, tasks in the energy sector were identified the implementation of which would reduce emissions by 13-17%. These tasks included the technological modernisation of thermal power stations, the development of small hydro-power stations and the use of solar and wind energy.

In ***Cyprus***, measures were designed in five sectors: electricity generation, residential and tertiary sector, industry, transport and waste.

Box No 4 [Use of renewable energy sources resulting in emissions reduction in Cyprus]

As Cyprus has sunshine almost throughout the year, the government has established long ago a scheme for subsidizing the installation of solar water heaters. The scheme's success is evident from the fact that almost all households in Cyprus have a solar water heating system installed.

In ***Denmark,*** tasks were laid down for several sectors, e.g. the Danish Building Regulations set the requirements for the use of oil per m^2 of building. In 2006, the ceiling for a new building was 5.5 litres of oil per m^2, whereas in 2010 a new building would be allowed to use only 4.2 litres of oil.

In order to reduce GHG emissions, in ***Estonia*** a number of policy documents were adopted. Estonia lacks an up-to-date action plan for reduction of greenhouse gas emissions as well as the goal of how much the emissions should change in the future. Furthermore, the action plans of sectors affecting the GHG also do not establish clear GHG-related goals. The NAO's analysis showed that there were no clear GHG-related quantified goals in the documents and mostly it has not been evaluated how extensively the activities of these plans affect the generation of GHG.

In the period 2003-2008, ***Israel*** reduced the CO_2 emission rate in the audited energy sector from 830 g/kWh to 740 g/kWh, due to a change in fuel mix for electricity production. However, forecasts envisaged a growth of CO_2 emissions in the production of electricity. Israel is not required to reduce greenhouse gas emissions by pre-determined rates, and accordingly it has not yet set reduction goals for the energy sector. However, the Government of Israel has in recent years set goals for increasing the economy's energy efficiency and producing electricity using renewable energy sources, thus directly influencing the reduction of greenhouse gas emissions in the energy sector. Goals have been set for increasing the economy's energy efficiency to achieve

a 20% reduction of energy consumption until 2020 and to increase electricity production from renewable energy sources to 10% of electricity consumption in 2020.

Box No 5 [The Israeli Government's Resolution on steps for bringing about energy efficiency and diminishing electricity consumption]

In September 2008, the Government of Israel decided upon steps to reduce electricity consumption, as part of a general move towards increasing the economy's energy efficiency, further to a previous decision that set the goal of a 20% reduction in electricity consumption by 2020 (based on actual electricity consumption in 2006). The Government Resolution constituted a national strategic programme for raising energy efficiency. The programme covered the relevant sectors (government ministries, household and business consumers, energy suppliers and the construction industry) and centred on essential activities (efficiency-raising programs, energy standards, regulations, guidelines, publicity, financial aid and incentives). It set out operational principles for applying them to each of the mentioned areas. It related to implementation deadlines, to those responsible for their implementation, and to their costs and sources of funding.

In the ***former Yugoslav Republic of Macedonia***, tasks were set out in the sectors of: energy, heating, transport, industry, agriculture, waste, land use change and forestry, housing and services.

The tasks aimed at GHG emission reduction in ***Poland*** were set out in the national legislation, strategies, programmes and policies for the sectors of: energy, transport, industry, agriculture, waste, land use and forestry, housing and construction. Two of these sectors were audited – energy and forestry.

Specifically:

- in the energy sector, the obligation to purchase electricity generated from renewable energy sources by companies operating in the field of electricity production and trading was introduced; the "Programme for Electricity" was adopted, providing e.g. for the achievement of a 7.5% share of energy produced from renewable energy sources in the total energy generated in 2010; penalties were imposed on entrepreneurs which placed low-quality fuels on the market; the use of most energy efficient products was promoted; measures allowing for efficient use of energy by its users were promoted and supported, and the emissions trading scheme was implemented;

- in the forestry sector, about 33,800 ha were afforested and the requirement for the approval of the State Forests to be obtained for the conversion of forest areas for different purposes was introduced. As a result of these measures, the CO_2 absorption by forests was maintained at a level of 40,500.00 Gg CO_{2e}, i.e. at a level which was higher by 23% than that in the base year.

Box No 6 [The system of "green certificates" in Poland]

In 2005, the Parliament of the Republic of Poland adopted regulations introducing a system of support for the use of renewable energy sources (RES). This system, called the system of "green certificates", imposed on the energy companies selling energy to end-users the obligation to acquire in a given year an appropriate number of certificates of origin for electricity generated from renewable energy sources. When the companies failed to acquire the required number of certificates, they were obliged to pay a penalty. Moreover, the energy companies licensed to trade in electricity and to render comprehensive services to electricity users at households were obliged to purchase all the electricity produced from renewable energy sources in the area of their operation. The introduction of the system stimulated investments in renewable energy sources, enhancing the capacity of the plants using renewable resources and increasing the electricity production by these plants. As a result of its implementation in 2006-2008, the amount of energy generated by renewable energy sources increased from 3,655,553.9 MWh in 2006 to 6,200,457.5 MWh in 2008.

The centrepiece of ***Switzerland***'s climate policy was the CO_2 Act which came into force in May 2000. It provided for the limitation of CO_2 emissions from fossil fuel use for heating and transport to 10% below 1990 levels over the period from 2008 to 2012. The overall target was further divided into a reduction target of 15% on heating fuels and 8% on transport fuels. The primary instruments to reach the targets were voluntary actions, levy (subsidiary), measures in other policy areas that were relevant to climate change mitigation, emissions trading and complementary use of flexible mechanisms.

In ***Ukraine,*** the national plan of actions for climate change mitigation was being elaborated and sectoral plans of actions on adaptation to climate change were at the stage of development. The responsible authority was the Ministry of Environment.

Box No 7 [Investment projects to reduce GHG emissions and enhance the efficiency of energy generation in Poland]

In its investment and development plans, the Dolna Odra Power Generation Complex SA of the Polish Energy Group in Nowe Czarnowo, which produced, distributed and traded in electricity and heat, included tasks to reduce its CO_2 emissions. Implementing these plans, in 2004-2008 it modernised its 3 power generation units and built an installation for feeding biomass for co-combustion in all the boilers at the power plant. As a result of the implementation of the first task, in 2006 – 2008 the CO_2 emissions were reduced by 125,693 Mg. The effect of the implementation of the second task was the so-called "avoided CO_2 emissions", which amounted to 137,806 Mg in 2005 and 603,774 Mg in 2006 – 2008. As a result of the activities, the production of the so-called green energy grew, the efficiency of the turboset and the capacity of the power plant increased, while the unit heat consumption fell.

II 2.4. EMISSION TRADING

The provisions of Article 17 of the Kyoto Protocol authorised the Parties included in Annex B to participate in emissions trading for the purposes of fulfilling their commitments to reduce their anthropogenic emissions of greenhouse gases. In the Kyoto Emissions Trading System, the trading period started in 2008 and will last until 2012. The Kyoto Trading System is based on contracts between countries.

The European Union Member States are obliged to implement the requirements of the Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC. The Directive has established the principles for emission trading. The EU trading scheme is based on contracts between companies - installation operators.

Among the 10 States of the Cooperating SAIs:

- ***Denmark, Estonia, Poland, Russian Federation, Switzerland*** and ***Ukraine*** are included in Annex B to Kyoto Protocol,
- ***Cyprus, Denmark, Estonia*** and ***Poland*** are EU Member States,
- ***Azerbaijan***, the ***former Yugoslav Republic of Macedonia*** and ***Israel*** are not included in the Annex B to Kyoto Protocol, and they are not EU countries.

A. EMISSION TRADING IN KYOTO COUNTRIES

In the ***Russian Federation*** and ***Switzerland*** – non EU countries, included in Annex B to Kyoto Protocol, the following bodies were in charge of the emission trading:

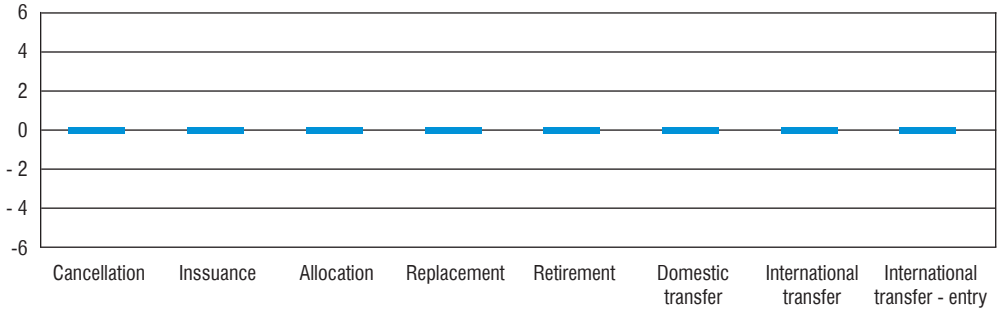
- the Ministry of Economic Development – in Russia,
- the Federal Office of the Environment (FOEN) (the National Secretariat SwissFlex) - in Switzerland.

In ***Russia***, there is no internal system of emission trading. The external system is not functioning yet. For the purpose of the implementation in Russia of Article 17 of the Kyoto Protocol, the Government of the Russian Federation designated, with its Act No 884-r of 27 June, 2009, the Savings Bank of Russia as the organisation authorised to participate in greenhouse gas emissions trading for the purpose of the fulfillment of Russia's certain quantitative obligations to reduce these emissions.
The Act No 843 of the Government of the Russian Federation of 28 October, 2009, established the procedure for the approval and monitoring of the projects carried out according to Article 6 of the Kyoto Protocol (Joint Implementation projects).

In ***Switzerland***, in 2006 the national registry did not register any allowance transfers. In turn, in 2007, 302,480 CERs were transferred to Switzerland and in 2008 so were 114,876,319 CERs and 42,859,242 AAUs. In 2007, no allowances were transferred from Switzerland, whereas in 2008 98,014,551 CERs and 22,000,000 AAUs were transferred from Switzerland.

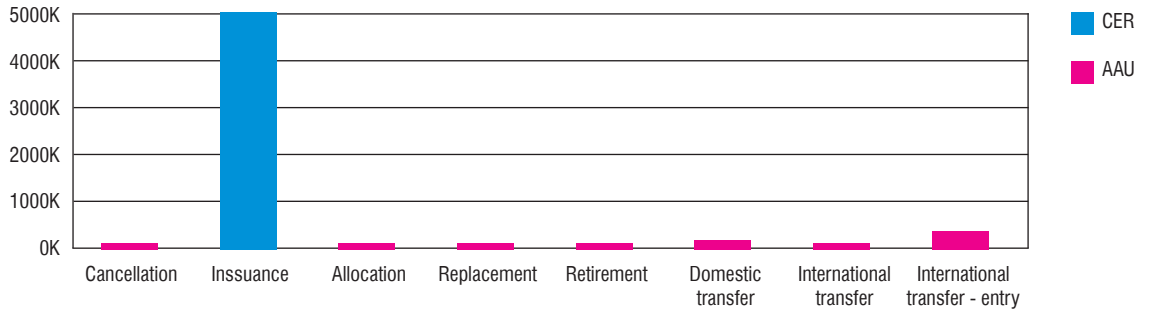
Annual summary of quantity of units per type of operation made in the national registry in 2006

Cancellation	Cancellation	Inssuance	Allocation	Replacement	Retirement	Domestic transfer	International transfer	International transfer - entry
0	0	0	0	0	0	0	0	0



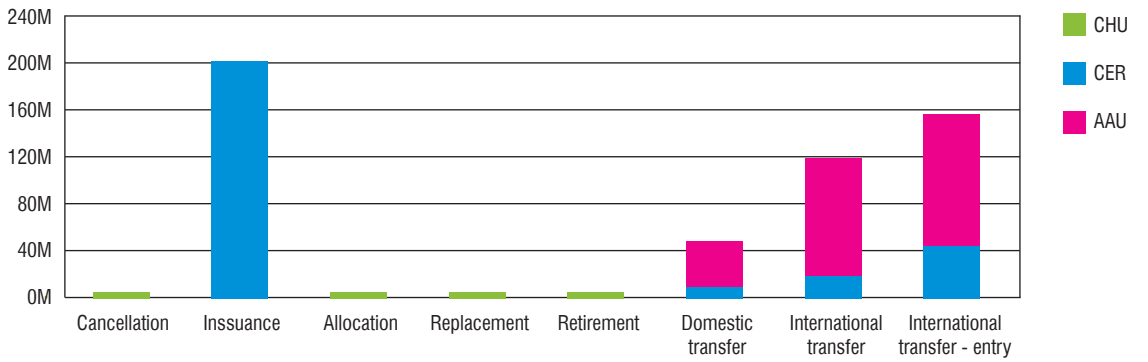
Annual summary of quantity of units per type of operation made in the national registry in 2007

	Cancellation	Cancellation	Inssuance	Allocation	Replacement	Retirement	Domestic transfer	International transfer	International transfer - entry
AAU	0	0	5,000,000	0	0	0	0	0	0
CER	0	0	0	0	0	0	71,990	0	302,480



Annual summary of quantity of units per type of operation made in the national registry in 2008

	Cancellation	Cancellation	Inssuance	Allocation	Replacement	Retirement	Domestic transfer	International transfer	International transfer - entry
AAU	0	0	237,838,402	0	0	0	2,000,002	22,000,000	42,859,242
CER	0	117,639	0	0	0	0	50,624,737	98,014,551	114,876,319
CHU	0	0	0	2,923,581	0	0	0	0	0



Switzerland intended to link its national system with the Community emissions trading scheme (EU ETS). There were already the first contacts with the EC and further meetings were expected. While the Swiss emissions trading scheme was technically compatible with the EU ETS:

- linking the Swiss scheme and the EU ETS would require a treaty to be signed, which would take some time to finalise; and
- there was a substantial difference in penalties imposed on companies that did not comply with their obligations, as in the Swiss scheme the penalty ranged from 12 to 36 CHF per tonne of CO_2 emitted, whereas in the EU ETS this penalty was 100 EUR per tonne of CO_2 emitted above a certain level.

B. EMISSIONS TRADING IN EU COUNTRIES

Organisation of the system – bodies in charge

In 4 EU Member States, the following bodies were in charge of the emissions trading scheme:

- in Cyprus - the Environment Service of the Ministry of Agriculture, Natural Resources and Environment;
- in Denmark - 3 Ministries: the Ministry of Climate and Energy, the Ministry of Foreign Affairs and the Ministry of Environment;
- in Estonia - the Ministry of the Environment;
- in Poland - the Institute of Environmental Protection, within the structure of which the National Administration of the Emission Trading Scheme operated under the supervision of the Minister of the Environment;

The National Allocation Plans

In ***Cyprus, Denmark, Estonia*** and ***Poland***, pursuant to Article 9 of Directive 2003/87/EC, national emission allowance allocation plans were developed. The audits of the principles and methods of the allocation of allowances to the individual scheme-covered installations showed that these countries applied following principles of their allocation:

State	Principles of allowances allocation	Period covered by plans	Approval of National Allocation Plan
Cyprus	The anticipated activity of each installation and the opportunities available for emission reductions. The anticipated activity was estimated using correlation coefficients between demand /production and the Gross Domestic Product (GDP) for each of the industry sectors.	2005-2007 2008-2012	2004 – submitted and approved by EC 2007 – approved with reduction 2009 – final approval
Denmark	Denmark chose to use the European Commission's interpretation of the production units to which quotas were to be allocated. Under this interpretation, the companies which produced electricity and heat had to achieve the highest reductions. The amounts of quotas distributed were based on the production levels in earlier years.	2005-2007 2008-2012	2004 2007
Estonia	Bottom-up method – based on emission data from enterprises which considered emissions in previous years and future production plans in their calculations.	2005-2007 2008-2012	2005 2008
Poland	Sectoral principle – the allocation of allowances to sectors and, subsequently, their allocation within the sectors among installations, based on data from enterprises.	2005-2007 2008-2012	2005 2008

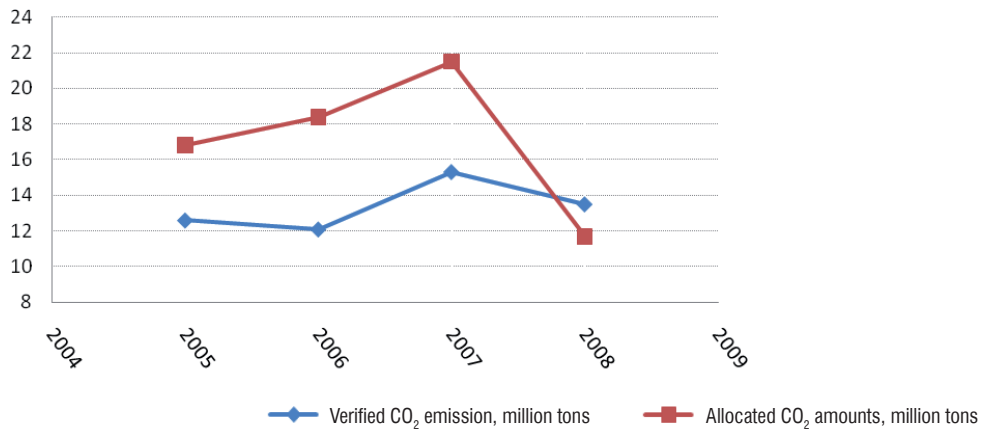
In ***Ukraine*** as an EU Associated State, the national plan for distribution of allowances for the anthropogenic greenhouse gases emissions by sources was at the stage of development. The responsible authority was the National Environmental Investments Agency.

Planned, allocated and used numbers of CO_2 emission allowances in 2006-2008

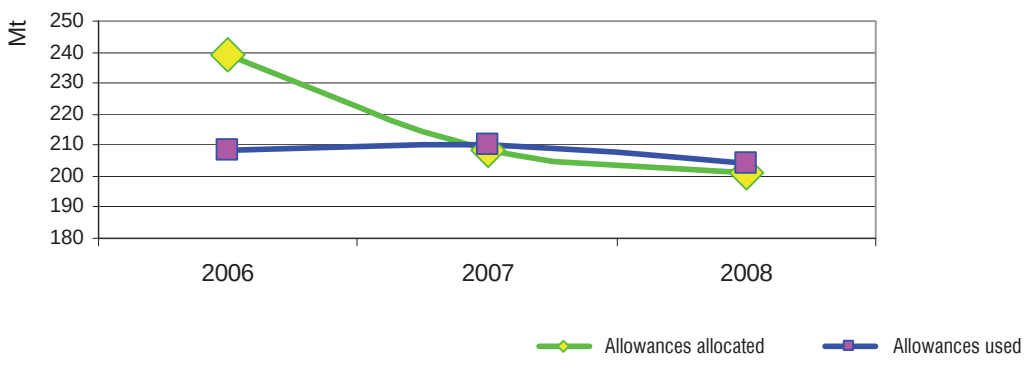
State	Period covered by plans	CO_2 emission levels planned in NAP (Mg)	Emission level cuts by EC (%) and the level of the assigned amount for the 2nd commitment period	Number of allowances allocated	Number of verified GHG (Mg)
Cyprus	2005-2007 2008-2012	17 221 811 35 607 494	23% 27 398 900	2006 – 5 612 379 2007 – 5 899 493 2008 – 4 815 089	2006 – 5 259 273 2007 – 5 405 698 2008 – 5 604 915
Denmark	2005-2007 2008-2012	100 500 000 122 500 000	0% 122 500 000	2006 – 60 677 2007 – 90 083 2008 – 5 762	2006 – 60 675 2007 – 90 101 2008 – 5 030
Poland	2005-2007 2008-2012	717 300 000 1 410 941 424	26.7% 1 042 576 975	2006 – 239 100 000 2007 – 208 515 395 2008 – 200 940 137	2006 – 208 258 064 2007 – 210 020 106 2008 – 204 181 420
Estonia	2005-2007 2008-2012	56 859 003 122 860 000	48.15% 59 162 259		

There were the following numbers of allocated and used allowances:

Estonia



Poland



Two countries of the Cooperating SAIs - Estonia and Poland – took the decisions of the European Commission concerning the national GHG emission allowance allocation plans submitted by these countries for 2008–2012 pursuant to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC to the Court of First Instance of the European Communities. The Court ruled that the complaints of Estonia and Poland were justified and in its verdicts of 23 September 2009 it annulled the decisions of the European Commission. It means that the discussion with the Commission about additional allowances for these two countries was opened again.

Register system functioning

Pursuant to Article 6 (1) of Decision No 280/2004/EC, the Member States were obliged to establish and maintain registries in order to ensure the accurate accounting of the issue, holding, transfer, acquisition, cancellation and withdrawal of assigned amount units, removal units, emission reduction units and certified emission reductions. The national registries were maintained in the consolidated system of the European Community – the Community Independent Transaction Log (CITL).

The audit demonstrated that in 3 EU Member States: ***Denmark, Estonia*** and ***Poland*** electronic registries were operated. In ***Estonia***, the registry system was set in operation in 2005. It used GRETA software which had been supplied by the Department for Environment, Food and Rural Affairs of the United Kingdom, which was expected to be replaced by CR (Commission Registry) software. ***Poland*** used an electronic system using SERINGAS software accredited by the EC to maintain its National Allowance Registry. In ***Cyprus***, the operations of allocation, verification and surrender of emission allowances were carried out manually. Cyprus was obliged to maintain its national registry in a consolidated manner with the Community Registry. In order to accommodate this consolidation, the development and installation of an updated software of the Community Registry, which was to be implemented by the Commission, was required. This had not been implemented by the end of the audit.

Emission report verification

The provisions of Article 15 of Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC obliged the Member States to ensure verification of the annual emission reports submitted by installation operators.

In ***Cyprus***, the annual emission reports, which were submitted by installation operators, were verified by consultants accredited by European Agencies.

In ***Denmark***, 7 accredited companies verified annual reports on actual CO_2 emissions.

In ***Estonia***, verifiers were not accredited. The verifier was the Estonian Environment Information Centre of the Ministry of the Environment, whereas the actual verification was done by the officials of the Environmental Board of the Ministry of the Environment.

In ***Poland***, reports were verified by authorised auditors (private companies accredited by the Polish Accreditation Centre) or Voivodship Inspectors for Environmental Protection.

Fees in the emission allowance allocation system

The audit demonstrated that allowances were allocated free of charge to the installation operators in ***Cyprus, Estonia***. In ***Denmark*** and ***Poland***, a charge for having their accounts in the national registries was collected from the installation operators: in Denmark, this was a yearly charge in an amount of 81 EUR, whereas in Poland this was a single charge in the commitment period in an amount of 128 EUR. Moreover, the Danish companies which were regulated by the law on quotas and received free quotas paid 0.035 EUR per free quota.

The operators covered by the system in Poland were obliged to pay a single charge in the commitment period, calculated as a product of the number of emission allowances allocated in the first year of the commitment period and a unit charge rate for carbon dioxide emissions into the air.

International emission trading

In 2007, ***Cyprus*** sold only 490 000 allowances.
Denmark did not investigate the numbers of emission allowances sold and purchased in the audited period.
The number of bought and sold allowances in EU trading scheme is not available to the public in ***Estonia***.
In 2006-2008, 91.0 million emission allowances were transferred from ***Poland*** by installation operators. In that period, 20.6 million emission allowances were transferred to Poland by installation operators.

II 2.5. CLEAN DEVELOPMENT MECHANISM

The audit demonstrated that the Clean Development Mechanism (CDM), referred to in Article 12 of the Kyoto Protocol, was applied in ***Denmark, Israel*** and ***Switzerland.*** In turn, in ***Azerbaijan***, ***Cyprus*** and the ***former Yugoslav Republic of Macedonia*** preparatory work was underway for the application of CDM. Specifically:

Azerbaijan	23 project proposals were registered and 3 project documents were in the process of verification.
Cyprus	The Environment Service issued letters of approval for 7 projects, for which the final approval of the UNFCCC had not yet been obtained. All projects were in the construction phase.
Denmark	27 CDM projects were implemented by Denmark in Armenia, China, Egypt, Malaysia, South Africa and Thailand. The contracted amount of CERs was 6,244,349 Mg CO_{2e}.
Israel	As of March 2009, 42 projects were submitted in the fields of energy, industry, waste, fuel replacement and agriculture. Most of them were in various stages of approval and had a reduction potential of over 5 million tons of carbon dioxide; 14 of them were registered with the Secretariat of the Climate Convention.
The former Yugoslav Republic of Macedonia	The potential projects under the National CDM Strategy included 7 CDM projects in the energy sector. 4 projects with developed PDD related to the following: 2 projects related to the energy efficiency, 1 project in the waste sector and 1 project in the forestry sector. 3 projects were under the call of interest in 2008. Under the Programme for Cooperation with the Italian Ministry of Environment, Land and Sea, PDD documents were developed, under the calls of 2007 and 2008, for 7 CDM projects implemented. PDD documents were also developed in the framework of cooperation with Norway. There were also 2 independent projects: rehabilitation of 6 hydro-power plants, ELEM Macedonia, and a 30MW cogeneration plant, Kogel, Skopje.
Switzerland	Switzerland itself does not conduct any CDM or JI projects. Emission allowances from abroad are generated (or purchased) by the Climate Cent Foundation (Stiftung Klimarappen). The Climate Cent Foundation's mandate abroad for the period 2008 to 2012 is to acquire as a maximum 10 million tonnes of project-based Kyoto certificates and to hand those over to the Swiss Confederation towards the fulfilment of its target. In order to cover any delivery risk, the Foundation aims to acquire abroad a set of certificates for 12 million tonnes. In principle, all project-based Kyoto certificates may be purchased. However, the Foundation Council has decided to abstain from acquiring certificates generated by certain types of projects (HFC-23, coal mine methane capture, biological sinks). The Foundation lays its emphasis on projects aimed at making use of renewable energy and on high-quality small-scale projects. Current status: By the end of 2008, in the context of its acquisition programme for Kyoto certificates, the Foundation had signed agreements for an expected total of 9,40 million tonnes of CO_2. In 2008, 0,94 million Kyoto certificates stemming from 13 projects were transferred to the Foundation's account in the National Emissions Trading Registry, each certificate amounting to one tonne of CO_2.

II 2.6. JOINT IMPLEMENTATION

In the audited period, in ***Denmark, Estonia Poland*** and ***Ukraine*** Joint Implementation (JI) projects were implemented under Article 6 of the Kyoto Protocol. In ***Russia***, preparations for their launch began (with an update of the legal basis).

Joint Implementation was not relevant to Azerbaijan, Cyprus, Israel and the former Yugoslav Republic of Macedonia, because these countries are not listed in Annex 1 to the UNFCCC.

Denmark	18 JI projects were implemented by Denmark in Bulgaria, Czech Republic, Poland, Romania and Russian Federation. The contracted amount of ERUs was 9,988,840 Mg CO_{2e}.
Estonia	8 projects were implemented in Estonia with Finland, Austria, Sweden and NEFCO, expected to bring an estimated emission reduction of 1,467,307 Mg CO_2.
Poland	It did not implement any JI (Joint Implementation) projects in other States. In the audited period, in Poland projects co-financed with the resources of other European countries were implemented. 12 JI projects were approved for implementation, including 6 projects before 2006; in 2006 - 1 project, in 2007 – 1 project, in 2008 – 3 projects and in 2009 – 1 project. The implementation periods of the projects were estimated at 4, 5, 15, 20 and 30 years. The implementation cost of 8 of them was 69,493,800 EUR, including 57,101,000 EUR from the resources of the Governments of Canada, Denmark, the Netherlands, Japan and Great Britain. The implementation of the projects was expected to bring an emission reduction of 9,233,600 Mg CO_2.
Russia	In the course of the present audit, the Ministry of Economic Development of the Russian Federation reviewed 38 Joint Implementation projects.
Ukraine	In Ukraine, 9 Joint Implementation projects were carried out; they were expected to bring an emission reduction by 25,690,946 Mg CO_{2e}.

II 2.7. INTERNATIONAL COOPERATION IN THE FIELD OF CLIMATE CHANGE MITIGATION AND DATA EXCHANGE

In ***Azerbaijan***, the regional cooperation in the field of climate change was launched by the signing of the Memorandum of Understanding in 2002 for carrying out the Educational Programme for 2002-2005 on the mitigation of greenhouse gas emissions in the Caspian basin. Apart from Canada and Azerbaijan, two Central Asian republics (Kazakhstan and Uzbekistan) participated in this programme.

Denmark. The Community Development Carbon Fund (CDCF), a multi-donor trust fund administered by the World Bank, of which the Danish Carbon Fund was a part, provided Azerbaijan with the first tranche of carbon finance for climate mitigation tasks with a total capitalization of 89.75 million EUR. The Governments of Denmark, Austria, Canada, Italy, Luxembourg, Netherlands, Spain, the Regional Government of Wallonia (Belgium), the Regional Government of Brussels (Belgium) and 16 private companies and organizations participated in the first tranche.

Estonia participated in the European Commission and UNFCCC working groups, there was also international cooperation through Joint Implementation projects. In Cyprus, no official international cooperation was conducted in the field of climate change mitigation and data exchange.

The ***former Yugoslav Republic of Macedonia*** ratified the Memorandum of Understanding with the Republic of Italy and the Republic of Slovenia on the implementation of projects in compliance with the CDM of the Kyoto Protocol. Within the bilateral cooperation with the Italian Ministry of Environment, Land and Sea, the

former Yugoslav Republic of Macedonia - Italian Joint Office was opened in January 2006. Its main activities included the identification of the project potential and the support for preparation of the legislative framework for the implementation of potential CDM projects.

A second project called "Building of local capacities for climate change" was financed by the Government of Norway. Moreover, the former Yugoslav Republic of Macedonia signed the Memorandum of Understanding with UNDP on the Carbon Fund of the Millennium Development Goals and also participated in the regional UNDP project called the "Regional Project on Building Capacities to Access Carbon Financing in Eastern Europe and CIS" and in the REC sub-regional project '"Enhance Regional South - East European (SEE) Cooperation in the Field of Climate Policy". It took part in the regional project "Capacity Building for Improving the Quality of Greenhouse Gas Inventories (Europe/CIS region)" in the period 2003 – 2006, funded in parallel by UNDP - GEF and Switzerland. In 2005, the former Yugoslav Republic of Macedonia finalised the project "Macedonia's National Capacity Needs Assessment for Global Environmental Management'. Its objective was to assess the capacity of the country to meet its obligations under the global environmental conventions pertaining to biodiversity (UNCBD), climate change (UNFCCC), and land degradation and desertification (UNCCD).

In the framework of its international cooperation in the field of climate change and data exchange, ***Poland*** e.g.:

- participated in the expert groups of the European Union Council on reporting (REP), on financing (EGIF), the Working Party on International Environment Issues – Climate Change (WPIEI-CC), the Expert Group on Further Action (EGFA), on Flexible Mechanisms of the Kyoto Protocol (MEX), on Technology (EGTECH), on Adaptation (EGAD), on Bunker Fuel (BF), on Land Use, Land Use Change and Forestry (LULUCF); and in the Expert Groups of the EC: Working Group 1 on Annual Emission Inventories (WG1), Working Group on Emissions Trading (WG3) and the Working Group for the Review of Directive 2003/87/EC,

- took part in the work of the subsidiary bodies and working groups of the Climate Convention: the Subsidiary Body for Scientific and Technological Advice (SBSTA), the Subsidiary Body for Implementation (SBI), the Ad Hoc Working Group on Long-term Cooperative Action (AWG LCA), and the Kyoto Protocol: the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG KP),

- was involved in the activities carried out within the Thematic Scientific Network ENVITECH-NET[4], established to support the implementation of the Environmental Technologies Action Plan in Europe, including technologies to prevent global climate change;

- participated in the Interest Group on Climate Change and Adaptation (IGA) of the European Environment Agency (EEA).

Switzerland conducted international cooperation in the field of climate change mitigation and data exchange to a very wide extent within the framework of the so-called flexible mechanisms of the Kyoto Protocol, i.e. CDM and JI. Moreover, the activities of the Global Programme for Climate Change (GPCC) of the Swiss Agency for Development and Cooperation SDC (the Federal Department of Foreign Affairs – FDFA) covered e.g. India, ASEAN, China, South Africa, Central America, Peru and the Andean region. The action areas under the Programme included e.g. rural electrification and access to modern energy sources; energy efficiency of buildings and specific branches of SMEs; sustainable management of soil, water and forests; management of climate risks, transfer of technologies and know-how, promotion of technological innovation, training of operators, engineers, architects, elaboration of national policies and plans, and raising the awareness of the public.

In ***Ukraine***, a data bank on environmentally friendly technologies, the exchange of information on the application of technologies between Ukraine and the Parties to the UNFCCC as well as on methods for reducing

4. Environmental Technology Thematic Network

anthropogenic emissions by sources and enhancing anthropogenic removals by sinks of greenhouse gases was at the stage of development.

II 2.8. SOURCES OF CLIMATE CHANGE MITIGATION FUNDING

The funds for climate change mitigation in the States of the Cooperating SAIs primarily came from the state budgets (***Azerbaijan, Cyprus, Denmark, Estonia, Israel, the former Yugoslav Republic of Macedonia, Poland, Russia*** and ***Ukraine***) as well as from other national resources, target funds, international financial institutions and the own funds of enterprises. Specifically, outlays were incurred from:

- the Global Environment Fund, the World Bank and other international financial institutions (***Azerbaijan***);
- the Environmental Investment Centre (***Estonia***);
- the UNDP, GEF, World Bank (the ***former Yugoslav Republic of Macedonia***);
- local governments, the National Fund for Environmental Protection and Water Management and the Voivodship Funds for Environmental Protection (loans, credits and grants for enterprises and grants for public administration units), enterprises' own funds as well as funds from the European Union and the governments of other countries, e.g. Denmark and the Netherlands (***Poland***);

II 3. MONITORING OF ACTIVITIES AND RESULTS ACHIEVED

In accordance with the provisions of Article 4 (1) (a) and Article 12 of the UNFCCC, the States-Signatories undertook to submit national inventory reports on anthropogenic emissions by sources and removals by sinks of greenhouse gases to the Secretariat of the Conference of the Parties to the UNFCCC. The scope of these reports was set out in Article 12 of the Convention. In Article 5 of the Kyoto Protocol, the States-Parties committed themselves to establish a system for the estimation of the above-mentioned emissions and removals, whereas in Article 7 they undertook to incorporate in their annual inventory reports on emissions and removals the supplementary information necessary for the fulfilment of their commitments under Article 3 of the Kyoto Protocol concerning the levels of their reductions. Pursuant to Decision 25/CP.8 of the Conference of the Parties to the UNFCCC, the States-Parties committed themselves to submit by 1 January 2006 their reports on progress in their fulfilment of their commitments under the Kyoto Protocol.

Moreover, for the assessment of actual progress and to enable the preparation of the above-mentioned annual reports by the European Community, by means of the provisions of Article 21 of Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC and Article 3 of Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, the Member States of the European Union were obliged to submit their annual reports to the European Commission (a preliminary report by 15 January of each year and a final report by 15 March of each year), containing data on anthropogenic emissions and removals by sinks of greenhouse gases as well as information on national policies and measures which limited and/or reduced greenhouse gas emissions and enhanced their removals by sinks.

II 3.1. ORGANISATION OF THE NATIONAL EMISSION MONITORING SYSTEM

In ***Cyprus***, the compilation of the national GHG inventory was entrusted to the Environment Service (MANRE).

In ***Denmark***, the Danish Energy Agency was responsible for carrying out national climate adjustment strategies. The supervising authorities included: GEUS – the Geological Survey of Denmark and Greenland, an independent Danish research and consultancy agency operating in the areas of environmental geology, water resources, energy and mineral resources and the Danish Ministry of Environment, which drew up different reports on the issues related to climate change.

In ***Estonia***, the Ministry of the Environment was responsible for the greenhouse gas inventory. Its tasks included the approval of the inventory results before their submission to the UNFCCC Secretariat, the conclusion of agreements with inventory compilers and the coordination of their cooperation with the UNFCCC Secretariat, the provision of Information to inventory compilers about the requirements of the national system, ensuring that existing information in national institutions was considered and used in the inventory as well as the coordination of the inventory reviews carried out by the UNFCCC bodies. The information for the inventory reports was compiled by the experts who worked on a contractual basis. The structure of the Ministry of the Environment comprised the Climate and Ozone Bureau of the Estonian Environment Information Centre, which was responsible for completing the National Inventory Report, coordinating the work on the QA/QC plan, preparing the inventory reviews by the UNFCCC bodies, coordinating the communication with the expert review team and responding to the review findings as well as for the overall archiving system.

In ***Israel***, the Central Bureau of Statistics (CBS) monitored and calculated greenhouse gas emissions. The CBS received data from the Fuel Authority in the Ministry of National Infrastructures, large factories and the Ministry of Industry, Commerce and Employment. The CBS calculated agricultural and transport emissions from its own statistical data, whereas methane emissions from waste landfills were based on surveys carried out by local governments and data provided by the Ministry of Environmental Protection.

In the ***former Yugoslav Republic of Macedonia*** the GHG Inventory was prepared for the first time as part of the First National Communication on Climate Change using Revised 1996 IPCC methodology, where the three main GHGs were inventoried for the period 1990 – 1998. As prescribed by this methodology, the GHG inventory comprised the following sectors: Energy, Industrial Processes, Agriculture, Land-Use Change and Forestry, and Waste. This inventory underwent a substantial national peer review and also received technical feedback from an international expert, provided by the National Communications Support Unit (NCSU).

Under the Second National Communication the main goal for the GHG inventory-making was to prepare national GHG inventories for the years 1999 – 2002 (with 2000 as the base year), according to the guidelines for the preparation of National Communications (17/CP.8). The main source of information was the State Statistical Office (official yearbooks), as well as official data from other national institutions, such the Ministry of Agriculture, Forestry and Water Economy and the Ministry of Interior.

The national GHG inventory team was structured in a way that ensured the quality control and assurance for input data and estimated emissions to the maximum possible extent. It involved the following entities:

The Ministry of Environment and Physical Planning (MOEPP), having the responsibilities for:
- Supervising the national inventory process, and
- Internationally reporting the emissions.

The National Institution, which:
- Acted as the National Inventory Team Leader,
- Maintained the whole GHG inventory,
- Incorporated good practice elements such as key source analyses, uncertainty management, QA/QC procedures, documenting and archiving, and
- Reported the emissions to MOEPP,
- Coordinated and supervised the Sectoral Experts (two experts for each sector):
- Acted as the Enterer, responsible for identification/verification of data sources, entering and documenting the input data, and
- Acted as the Checker, responsible for checking and validating the input data and emission estimates.

The National Institution appointed as National Inventory Team Leader, was the Research Centre for Energy Informatics and Materials of the Macedonian Academy of Sciences and Arts (ICEIM-MANU).

In ***Poland***, the Minister of the Environment entrusted the Institute of Environmental Protection with the tasks of the National Administration of the Emission Trading Scheme and the National Emissions Centre (KCIE). The National Emission Centre carried out greenhouse gas inventories based on data from statistical publications of the Main Statistical Office and the EUROSTAT database, whereas in the case of categories for which no official statistical data were available it used the results of specialist studies or expert assessments commissioned by the Ministry of the Environment. The inventories comprised e.g. the data on CO_2 emissions from installations participating in the Community emission allowance trading scheme.

In ***Russia***, the Ministry of the Economic Development of Russia was the coordinating organisation and one responsible for the national emissions. The supervising organisations were the relevant Ministries and the Departments specified in the Chapter II.1. The Federal Service of Hydrometeorology and Environmental Monitoring (Rosgidromet), the State Institution "Institute of Global Climate and Ecology of the Federal Service on Environment, Hydrometeorology and Monitoring" (under Rosgidromet) and the Russian Academy of Sciences were responsible for the preparation, conducting and presentation of the National Cadastre and the National Report on Anthropogenic GHG Emissions and Absorption to the Secretary of the UN Framework Convention on Climate Change. The Ministry of Natural Resources of Russia was the body responsible for the national register of hydrocarbon units.

The ***Swiss*** National Inventory System (NIS) was managed by the Federal Department of the Environment, Transport, Energy and Communications (DETEC). NIS was hosted by a DETEC agency, the Federal Office for the Environment (FOEN). Further information and data originated from the Federal Office of Agriculture and firms or industry associations.

In ***Ukraine***, the main bodies responsible for the national control system were: the National Environmental Investments Agency, the State Statistics Committee, the Ministry of Environment and the Ukrainian Scientific-Research Hydrometeorological Institute. Observations on the emissions of greenhouse gases and their precursors were launched in 2005. In 2008, observations were extended to include the so-called industrial gases. The National Inventory Centre, established on the basis of the Ministry of Environment, was responsible for the greenhouse gas inventory.

The evaluation below indicates whether the monitoring system is in place, but does not cover the assessment of the quality of the monitoring and inventory reports.

Monitoring system in place	AZ	CY	DK	EE	IL	MK	PL	RUS	CH	UA
		☀	☀	☀	☀	☀	☀	☀	☀	☀

☀ The provisions are implemented ⛅ The provisions are partly implemented ☁ The provisions are not implemented

II 3.2 REPORTING SYSTEM ON INTERNATIONAL LEVEL

In ***Azerbaijan***, the State Statistics Committee and National Experts were responsible for reporting. All the sectors used the best inventory methodology developed by the Intergovernmental Experts Group. Reporting was carried out according to the requirements of the United Nations Framework Convention on Climate Change.

Cyprus recognised that it was not obliged to submit reports under Kyoto Protocol or the Framework Convention, but it was bound by its commitments towards the EU. In 2006, 2007, 2008 and 2009, the European Commission sent warning letters to the Government of Cyprus regarding the delay in the submission of reports. In its replies to the above letters the Environment Service expressed the view that since the Republic of Cyprus

was neither an Annex I Party to the UNFCCC nor an Annex B Party to the Kyoto Protocol, it bore no commitment as to the submission of GHG emission reports, yet submitted them voluntarily.

The reporting covered the sectors of: energy, industrial processes, solvent and other product use, agriculture, land use, change in land use and forestry, and waste. The data sources included: the National Statistical Service, the Energy Service, the Cyprus Electricity Authority, ETS Verifiers Reports, the Ministry for Transport, the Civil Aviation Authority, the Ministry of Agriculture, Natural Resources and Environment, the Department of Labour Inspection and the Ministry of Interior. The data were published on the website of the Environment Service. The inventory reports were prepared in accordance with the IPCC guidelines and the requirements of Decision 280/2004/EC; however, they were submitted with delays with respect to the required deadlines.

In ***Denmark***, the reports were submitted to the European Commission, the UN, the International Civil Aviation Organization - ICAO, the International Maritime Organization – IMO, the Baltic Sea Region Energy Co-operation – BASREC and the International Renewable Energy Agency – IRENA. In 2008, the Danish Meteorological Institute, which had been involved in a scientific project called Igloo (Indikatorer for GLObale Klimaforandringer i Overvågningen - Indicators of global climate change in monitoring data), published a report analyzing different scenarios for climate change.[5]

In ***Estonia***, the Ministry of the Environment and the Climate and Ozone Bureau of the Estonian Environment Information Centre operating within the structure of this Ministry were responsible for coordinating the reporting process and the cooperation between the inventory compilers and the UNFCCC bodies, approving the inventory reports and coordinating inventory reviews by the UNFCCC bodies. The inventory reports were submitted in accordance with the UNFCCC requirements. Since 1994 Estonia had prepared four National Communications and the 5th Communication was under preparation. The reports covered the sectors of: energy, industrial processes, agriculture, land use, land use change and forestry, and waste. Emissions were not calculated for the solvent and other product use sectors. Reports were available on the website of the Estonian Environment Information Centre of the Ministry of the Environment.

Israel was not obliged to submit reports; however, in 2000, it submitted a report to the IPCC and prepared a subsequent report in 2009. In 2007, it reported to the UNFCCC Secretariat the amounts of greenhouse gases emitted and absorbed in Israel for the years 2000, 2003, 2004 and 2005. The calculations were prepared according to the guidelines of the IPCC and uploaded onto the website of the UNFCCC.[6] Every year data were published on the total greenhouse gas emissions (three basic gases: carbon dioxide - CO_2; methane - CH_4; nitrous oxide - N_2O and four precursors: carbon monoxide - CO; NOX - nitrogen oxides; microbial volatile organic compounds – MVOCs and sulphur dioxide - SO_2) and the levels of carbon oxide absorption by forests, based on data received from the Jewish National Fund (the body responsible for afforestation). The CBS developed a model for calculating the emissions of three additional groups of greenhouse gases - perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF_6). The statistical yearbook published the total emissions of each of the greenhouse gases, emissions from fuel combustion and emissions from other activities as well as emissions further broken down by energy, manufacturing, construction, transportation, waste, agriculture and others. Moreover, the amounts of carbon dioxide emitted from fuel combustion were broken down by types of fuel (liquid fuel, coal, natural gas) and by types of consumption (space heating, motor vehicles, industry and electricity production). The yearbook did not feature data on CO_2 absorption in forests, but they were reported to the IPCC.

In the ***former Yugoslav Republic of Macedonia***, the Hydro Meteorological Directorate – Department for Meteorology was responsible for reporting on climate change. In compliance with the United Nations Frame-

5. Rigsrevisionen has not further investigated the questions concerning: addressees, frequency and timing of reports, compliance with the UNFCCC, KP, EU Directive requirements, sectors covered by reports (GHG emission and absorption levels), data collection sources and methods used for data collection and data published.

6. Greenhouse gas inventory submissions from non-Annex 1 Parties, Israel Inventory 2000, 2003-2005

work Convention on Climate Change, the Kyoto Protocol and EU Directives, the CLIMATE Report (monthly) and the Annual Report for the Bulletin on the Climate in WMO Region VI – Europe were published. Climate change data were published in the First and the Second National Reports on Climate Change in the former Yugoslav Republic of Macedonia. The Ministry of Environment and Physical Planning was responsible for international reporting on the emissions. The national GHG inventories were reported in the National Inventory Report (NIR).

In ***Poland***, the Minister of the Environment was responsible for reporting. The addressees of reports included: the Secretariat of the United Nations Framework Convention on Climate Change and the European Commission. Poland submitted all the reports required by the provisions of the UNFCCC, the Kyoto Protocol and the EU requirements. Certain reports were submitted with a delay. As a result of the delays, Poland received formal notices concerning its failure to meet its commitments and requests to eliminate its infringements of the Treaty obligations from the European Commission. The greenhouse gas inventory covered e.g. carbon dioxide, methane, nitrous oxide and industrial gases (HFCs, PFCs and SF_6), while the sources of emissions were broken down into groups according to the IPCC classification: energy, including fuel combustion and fugitive emissions from fuels, industrial processes, solvent and other product use, agriculture, including emissions from animal production, waste, including wastewater management and waste incineration. The inventory also covered the emissions of industrial gases: HFCs, PFCs and SF_6, and, in the scope of removals by sinks, land use change and forestry. Reports were drawn up on the basis of data on emissions and information received from the Ministries responsible for the individual sectors of the economy. The basic documents and data were published e.g. on the websites of the Ministry of the Environment, the Institute of Environmental Protection and the Institute of Meteorology and Water Management, at the libraries of Institutes, in national and foreign publications.

In ***Russia***, the Federal Service of Hydrometeorology and Environmental Monitoring (Rosgidromet) and the State Institution "Institute of Global Climate and Ecology" (under Rosgidromet and the Russian Academy of Sciences) were responsible for reporting. National reports were submitted at the dates defined by decisions made by the Conference of the Parties to the UNFCCC, whereas the national cadastre of anthropogenic GHG emission and absorption levels was issued annually. Reports complied with the requirements of the UN Framework Convention on Climate Change and the Kyoto Protocol. The reports covered all the sectors listed in Annex A to the Kyoto Protocol. The sources of data included federal statistics, data from particular companies, data from scientific research and consulting organisations, publications on scientific, technical and business issues and reports. Data were published on the Internet, on the websites of Rosgidromet and the Institute of Global Climate and Ecology of the Rosgidromet and RAN, in printed and electronic form – in limited circulation.

In ***Switzerland***, data from the sectors of energy, transport, waste, civil and military aviation, agriculture, land use and agriculture as well as industry associations were collected at the Swiss National Air Pollution Database (EMIS) and the Federal Office of the Environment. The reporting system was consistent with the UNFCCC requirements. The National Communication was published every four years, whereas the Greenhouse Gas Inventory was issued ever year. All the data were published in the report mentioned above and on the Internet.

In ***Ukraine***, the authorities responsible for preparing national communications and inventories were the National Environmental Investments Agency, the Ministry of Environment and the Ukrainian Scientific-Research Hydrometeorological Institute. The Second National Communication of Ukraine on climate change was submitted to the UNFCCC Secretariat on June 27, 2006. Ukraine also submitted its annual Inventories of anthropogenic emissions and removals by sinks of greenhouse gases to the UNFCCC Secretariat. They were published on the website of the Ministry for Environment and the UNFCCC Secretariat.

In all the States of the Cooperating SAIs, an emission monitoring system was in place and the required reports were submitted to the competent bodies. Some countries (Cyprus, Poland) submitted the reports with a delay.

The evaluation below indicates whether the reports were submitted, but does not cover the assessment of the quality of the reports.

Reporting on international level	AZ	CY	DK	EE	IL	MK	PL	RUS	CH	UA
										

 The provisions are implemented

 The provisions are partly implemented

 The provisions are not implemented

II 3.3. SOURCES OF MONITORING SYSTEM FUNDING

In ***Cyprus, Denmark, Estonia, Israel, Russia, Switzerland*** and ***Ukraine***, emission monitoring was fully financed from the state budget. Apart from the state budget funds, the ***former Yugoslav Republic of Macedonia*** also used UNDP funds. In Poland, the resources from the state budget were complemented with the resources of the National Fund for Environmental Protection and Water Management (a state financial institution).

Box No 8 [Monitoring system funding in the former Yugoslav Republic of Macedonia]

In the **former Yugoslav Republic of Macedonia**, the appropriate addressing of climate change issues requires significant financial resources. In general, the available financial support (especially the national one) for climate change related activities is insufficient and there is an urgent need for newly available funds, the involvement of the private sector and the awareness raising at the decision-making level. The budgets of the relevant ministries (Ministry of Environment and Physical Planning, Ministry of Education and Science, Ministry of Agriculture, Forestry and Water Economy) do not contain direct allocations for climate change issues, so these projects are mainly financed/co-financed by international institutions (UNDP, GEF, GEF Small Grant Programme). In the future the main financial resources will also be obtained from international finance institutions (World Bank), the UNFCCC Adaptation Fund and bilateral support from various climate change initiatives. Hence, the GEF Small Grant Programme, having been implemented at the national level since 2005, provided financial support to local NGOs towards addressing climate change, conservation of biodiversity, protection of international waters, reduction of the impact of persistent organic pollutants, and prevention of land degradation while generating sustainable livelihoods. By the end of 2006, a total of 13 projects had been implemented, out of which three addressed climate change issues, e.g. through implementing energy saving measures, assistance to bodies in production of oil from vegetables and production of bio-diesel from crops grown on the agricultural land contaminated with heavy metals. The implementation of the projects not only contributed to GHG emission reductions and improved the local economy, but also strengthened the capacities at the local level to deal with environmental problems, address poverty and ensure the greater participation of women. Recently, a contract for a World Bank loan has been signed for strengthening the capacities of the MOAFWE. One of the project components is the establishment of a Farm Register and the Land Parcel Identification System (LPIS). The establishment of this system will contribute towards providing very accurate and up to date information on crop patterns and land use, which can be used further on for accurate calculations of the emissions of GHGs and can provide a clear picture of water demand and water scarcity in the agricultural sector. In general, the available financial support (particularly the national one) for climate change activities in the country is scarce and limited, so there is an urgent need for fundraising, the involvement of private sector, and the awareness rising of policy-makers. The active use of EU Research Programmes (FP Programmes) is also recommended, as well as providing budgets in relevant national institutions.

II 3.4. INTERNATIONAL COOPERATION IN THE FIELD OF EMISSION MONITORING

Cyprus had no formal international cooperation agreements regarding methodologies, the presentation of results etc., beyond the European Commission. The officers of the Environment Service who were involved in the issue of climate change participated in working groups of the European Commission, during the meetings of which matters concerning inventory calculations and projections were discussed. The Republic of Cyprus also cooperated with the UNFCCC so as to improve the results of GHG emission calculations.

Denmark cooperated with the EU institutions and UN organisations: ICAO and IMO.

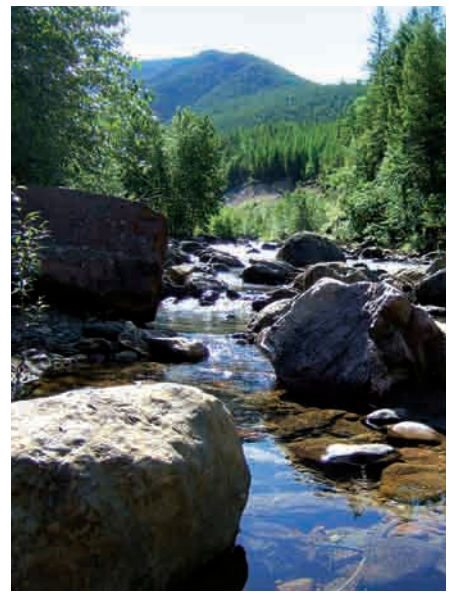
Estonia implemented twinning projects with Germany to enhance the capacity to reduce the emissions of fluorinated greenhouse gases in Estonia and with Finland to improve the quality of Estonia's National Greenhouse Gas Inventory.

Box No 9 [A twinning project between Estonia and Finland in the field of greenhouse gas inventories]

Estonia and Finland implemented a twinning project to review and assess the quality of the Estonian GHG inventory system. The Finnish inventory experts from the Statistics Finland reviewed together with the Estonian inventory compilers the Estonian Inventory Report and Common Reporting Format (CRF) tables and made recommendations for their improvement. As a result of the project, experiences were shared on data collection methods, emission factors, applied methods, as well as quality control and assurance procedures in order to improve the quality of the GHG inventory; professional contacts were created and the Ministry of Environment received practical suggestions as to how the quality of the GHG inventory could be improved.

A representative of the Central Bureau of Statistics (CBS) of Israel participated in the UN Conferences on Climate Change which took place in Bali in December 2007 and in Poznań in December 2008. The information obtained there helped shape the directions that the CBS took in developing its work in the area of greenhouse gases. In May 2009, the CBS received professional advice from the MEDSTAT programme[7] on developing methodology for calculating HFC, PFC, and FS_6 greenhouse gases.

The ***former Yugoslav Republic of Macedonia*** cooperated with the World Meteorological Organisation (WMO) and the national meteorology services of other states. The Ministry of Environment and Physical Planning has the responsibility for international reporting on the emissions. The Ministry of Environment and Physical Planning has ratified Memoranda of Understanding with Italy, Slovenia, UNDP, World Bank mission on implementation of projects in compliance with CDM of Kyoto Protocol, on cooperation regarding the Carbon Fund of the Millennium Development Goals and on identification of possible CDM projects.



In ***Poland***, the Institute of Environmental Protection participated in the work e.g. of the expert groups of the EU Council on reporting (REP) and financing (EGIF) and in the expert group working with the European Commission on annual emission in-

7. A programme for regional cooperation on statistical issues between the European Union and countries of the Middle East.

ventories (WG1). Moreover, the Institute served as the National Reference Centre for air quality and emissions of air pollutants within the structure of the European Environment Information and Observation Network of the European Environment Agency (EEA).

In ***Russia***, international cooperation was carried out by the Federal Service of Hydrometeorology and Environmental Monitoring (Rosgidromet), whereas in Switzerland it was conducted by the Federal Office of the Environment (FOEN), the Federal Office of Energy (SFOE), the Climate Cent Foundation, the Federal Office of Spatial Development (ARE) and the Cantons.

The Accounting Chamber of ***Ukraine*** did not audit International cooperation in the field of climate change monitoring.

II 4. FINANCING OF THE ACTIVITIES CONCERNING CLIMATE CHANGE PREVENTION

In all the States of the Cooperating SAIs, the activities to prevent climate change were financed from the state budget. In the ***former Yugoslav Republic of Macedonia***, such activities were also financed from foreign funds (of the European Union and under bilateral and multilateral agreements), whereas in ***Poland*** they were funded with the resources of the National Fund for Environmental Protection and Water Management (a state fund) and 16 Regional Funds for Environmental Protection and Water Management (regional self-governments' funds) as well as with foreign resources managed by the EcoFund Foundation.

In 2006, 2007 and 2008, in the States of the Cooperating SAIs, the following amounts were spent on tasks related to climate protection:

Azerbaijan 20% of the budget of the National Hydrometeorological Department,

Denmark
In 2006 – approx. 59 million EUR
In 2007 – approx. 58 million EUR
In 2008 – approx. 58 million EUR

The ***former Yugoslav Republic of Macedonia*** – the expenditures under the Meteorology Programme amounted to:
In 2006 – 468,800 EUR
In 2007 – 480,000 EUR
In 2008 – 563,200 EUR

The total amount of current foreign funds - EU, bilateral, multilateral etc. for environmental issues – as for the period 2009 – 2011 are 110.587 million €. In the future, measures for GHG reductions by sectors will be financed from different sources: state budget, ministries' budgets, municipalities' budgets, concessions and private investors, government incentives, carbon financing, loans, donors' support etc.

Poland
a) from the state budget on tasks related to air and climate protection:
In 2006 – 901.6 million EUR
In 2007 – 971.2 million EUR

b) from the National Fund for Environmental Protection and Water Management and the Regional Funds for Environmental Protection and Water Management on activities to prevent climate change:
In 2006 – 177.3 million EUR
In 2007 – 261.1 million EUR
In 2008 – 257.7 million EUR

and throughout the entire audited period 2006 – 2008 so was 1.7 million EUR on the research done by the State Hydrological and Meteorological Service

c) from the foreign funds managed by the EcoFund Foundation:
In 2006 – 13.082 million EUR
In 2007 – 13.618 million EUR
In 2008 – 8.003 million EUR

Ukraine Allocations from the state budget in 2006 – 2008 on audit activities and measures amounted to 462,000 EUR.

Among the 10 States of the Cooperating SAIs, only in Denmark was it possible to separate the resources spent on activities to prevent climate change, funding both national institutions and international projects. In the other States, it was impossible either to separate the amounts spent on the activities in question from the state budget or to distinguish these expenditures from the amounts expended on activities related to the individual components of the environment.

This Joint Final Report has been accepted by representatives of the Cooperating Supreme Audit Institutions. On behalf of:

Chamber of Accounts of the Republic of Azerbaijan	**Nazim Hasanov** *Auditor*
Audit Office of the Republic of Cyprus	**Akis Kikas** *Senior Principal Auditor*
Rigsrevisionen - Denmark	**Philippa Cecilie Krogh-Lund** *Auditor*
National Audit Office of Estonia	**Tuuli Rasso** *Audit Manager*
Office of the State Comptroller and Ombudsman of Israel	**Hanna Israelowich** *Senior Head of Division*
State Audit Office of the former Yugoslav Republic of Macedonia	**Tanja Tasevska** *Assistant General State Auditor, Performance Audit Department*
Supreme Audit Office of the Republic of Poland	**Alicja Gruszecka** *Advisor*
Accounts Chamber of the Russian Federation	**Valery Brattsev** *Director of the Department on the Control of the Expenses of the Federal Budget on Nature Management and Agriculture*
Swiss Federal Audit Office	**Martin Koci** *Auditor* **Emanuel Sangra** *Head of Evaluation Unit*
Accounting Chamber of Ukraine	**Mariya Shulezhko** *Chief Comptroller – Director of the Audit Department on Agricultural Complex, Nature Protection and Emergencies*

PART III

PART III SUMMARIES OF NATIONAL REPORTS ON AUDIT FINDINGS

Azerbaijan

ANALYTIC REVIEW OF THE CHAMBER OF ACCOUNTS OF THE REPUBLIC OF AZERBAIJAN IN CONNECTION WITH THE FULFILLMENT OF COMMITMENTS ARISING FROM THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE

1. INTRODUCTION

In October 2009 the Chamber of Accounts of the Republic of Azerbaijan joined the protocol of the Common Position on Cooperation for planned EUROSAI Coordinated Audit on Climate Change. Within the framework of parallel audit on climate change the Chamber of Accounts of the Republic of Azerbaijan has carried out an analytical review on the implementation of certain tasks in connection with the fulfillment of the commitments regarding the UN Framework Convention on Climate Change.

The aim of the review was the evaluation of the provisions of the UN Framework Convention on Climate Change and its Kyoto Protocol.

The main issues covered during the review are the following:

- research and monitoring on climate change;
- measures on mitigation of climate change through decreasing gas emissions into the atmosphere;
- regular reports on the situation of the environment.

Source of information: According to Article 15 of the Law on the Chamber of Accounts of the Republic of Azerbaijan data have been primarily obtained from the Ministry of Ecology and National Resources, which is the national coordinator in this process, for analytical purposes.

2. LEGAL AND ORGANIZATIONAL ACTIVITY (ACTIONS). CONDUCTING MEASURES ON MITIGATION OF CLIMATE CHANGE

Pollution of water basins and the Caspian Sea with household and industrial waste, damage made by the change in the level of the Caspian Sea, abnormal levels of harmful gas emission into the atmosphere, decreasing biodiversity, land erosion and salinization, utilization of industrial and household waste etc are urgent environmental problems in the Republic of Azerbaijan.

The effects of climate change in the country have recently been shown in flooding in coastal areas, the increasing cases and power of floods, deterioration of lands and increase in salted lands and deserts.
In June 1992 Azerbaijan joined the UN FCCC and became a party to the Convention by ratifying it in 1995. The State Commission on Climate Change was established in April 1997 under the order of the President of the Republic of Azerbaijan. Our country joined the Kyoto Protocol in 2000 and is taking an active part in one of its three instruments – the Clean Development Mechanism. In order to fulfill the commitments and duties arising from the convention the First National Data of the Republic of Azerbaijan was prepared with the financial assistance of the Global Environmental Fund (GEF) and UNDP and presented to the Secretariat of the Convention. The relevant action plan was drafted to minimize the effects of climate change in the first phase of the First National Data project, the needs were assessed on ecologically clean technologies for decreasing greenhouse gas emissions in the priority areas of economy in the second phase and proposals were made on the application of those technologies. The Second National Data of the Republic of Azerbaijan is being prepared now. The main attention in this phase is being directed to the human health, effects on ecosystems and selection of projects on clean development mechanism.

It should be noted that unlike other countries the leadership of the republic pays serious attention to the environment and climate change (up to now the Republic of Azerbaijan has ratified 15 international Conventions on the protection of the environment) and several relevant documents have been adopted to eliminate the existing problems.

Here, we can indicate several comprehensive action plans, which were adopted with the Orders of the President of the Republic of Azerbaijan and are now being implemented. These are the National Programme on environmentally sustainable socioeconomic development in the Republic of Azerbaijan, the National Programme on restoration and increase of forests in the Republic of Azerbaijan (both were adopted by Order 1152, dated 18 February 2003), the State Programme on the development of fuel energy complex in the Republic of Azerbaijan (2005 – 2015) (Order 635 dated 14 february 2005) and the Comprehensive Action Plan on improving the environmental situation in the Republic of Azerbaijan (Order 1697 dated 28 September 2006).
The arrangements for solving the existing environmental problems and responsible institutions for carrying out these arrangements are concretely indicated in those documents. Climate change was mentioned in these programmes and the Ministry of Ecology and National Resources, the Ministry of Industry and Energy, the Ministry of Transport, the Ministry of Internal Affairs and other official structures were identified as responsible institutions. Improvement of technologies used for decreasing the anthropogenic effect on the environment, application of technologies with high effective and low energy capacity and others were considered among these arrangements. Evaluation of climate change effects on the health of people and the environment, as well as relevant adaptation measures has been shown in the chapter on global environmental problems (Order numbered 1152, chapter 37).

We consider it reasonable to learn the effects of climate change on agriculture, as well, and take comprehensive actions on mitigation of its consequences within the indicated project.

The network of monitoring environmental pollution in the country consists of 8 atmosphere monitoring laboratories and 26 observation stations in the biggest industrial cities such as Baku, Sumgayit, Ganja, Mingechevir, Shirvan, Nakchivan, Lankaran and Shaki. In order to determine pollutants in the atmosphere, samples are taken and the chemical analysis on the following chemical pollutants are conducted in these cities three times a day at 07:00, 13:00, 19:00: dust, sulphuric gas (SO_2), carbon monoxide (CO), nitrogen dioxides (NO_2), nitrogen oxide (NO), hydrogen sulphide, soot, hard fluorides, hydrogen fluoride, chlorine, mercury, ammonium, sulphur trioxide, formaldehyde, furfural, solved sulphates.

Systematic monitoring is conducted to check the chemical composition of snow at four points in highland areas with stable snow coverage and the chemical composition of atmosphere rainfalls at 21 points with the purpose of learning the composition of cross-border pollutants carried over long distances in the atmosphere with rainfalls (rain, snow), evaluating their effects on the environment and conducting control over quality indicators of rainfalls. The composition of atmospheric rainfalls is qualified in accordance with the following quality and pollutant indicators: electric conduction, roughness, hydrogen indicator – pH, sulphate ion, nitrate ion, ammonium ion, chloride ion, phosphates, hydrocarbon ion, calcium ion and magnesium ion.

Monitoring on environment pollution is conducted in accordance with the laws of the Republic of Azerbaijan "On hydrometeorology activity" and "On the protection of the atmosphere", and the Regulations "On rules regarding monitoring of the environment and natural resources" (it was adopted by Rule No. 90 dated 1 July 2004 of the Cabinet of Ministries), which were drafted in line with the mentioned laws. The Ministry of Ecology and National Resources of the Republic of Azerbaijan carries out state control in this sphere. Environmental monitoring is financed by the state budget and extra-budgetary funds on the basis of various programmes. The use of data on environment monitoring can be free and paid. The paid data are prepared, transmitted and used on the basis of agreements made between parties at the request of consumers. (the Law of the Republic of Azerbaijan on Hydrometeorology Activity, Article 17; 23).

The Republic of Azerbaijan has not taken specific quantity-related commitments on the Kyoto Protocol and is only involved in its Clean Development Mechanism. For this purpose, negotiations are being held with such countries as Canada, Denmark, France and Japan to implement pilot projects. The Memorandum of Under-

standing on Cooperation has been signed between the government of the Republic of Azerbaijan and the Kingdom of Denmark in the implementation of the Kyoto Protocol in 2004.
An initial feasibility report has been prepared with the government of France in order to implement forestation projects to facilitate carbon dioxide absorption.

A regional project is being implemented in Azerbaijan with the assistance of the Global Environmental Fund on the cadastre of greenhouse gas emissions together with the project to provide technical support to the South Caucasus republics and Moldova the TACIS Programme of the European Union.

The Republic of Azerbaijan ratified the Vyana Convention for the Protection of the Ozone Layer, the Montreal Protocol on substances that deplete the ozone layer and the relevant amendments to this Protocol in 1996.

The annual ODM level in the country was identified over the past period and the Ozone Strategy of the Republic of Azerbaijan on a stage-by-stage decrease in the use of ozone depleting materials has been prepared. According to the strategy, a schedule on a stage-by-stage decrease in ODM use in Azerbaijan has been drafted and presented to the Secretariat of the Convention.

In line with the commitments as part of the protocol, the use of ODM with chlorine fluorine carbon composition and its import should be ceased. Relevant action is being taken in this direction and generally to regulate the export and import of ODM.

Reconstruction work has been carried out in enterprises using ODM (the Cinar refrigerators plant in Baku and the compressor plant in Sumqayit) with the financial assistance of the Global Environment Fund and plans were developed to utilize non-ozonizing alternative substances.

3. MONITORING AND CONTROL

PREPARATION OF REGULAR REPORTS ON ENVIRONMENTAL SITUATION

A first report on the situation of the environment and its protection in the Republic of Azerbaijan was published in 1993. Since 2002 reports prepared on the situation of environment and its protection have been sent to relevant municipal structures, are posted on the website (www.eco.gov.az) of the Ministry of Ecology and National Resources and are regularly published in the media of the country.

A total of 18 daily, weekly, ten-day and monthly bulletins on the situation of the environment are presented to decision makers, the relevant authorities, concerned organizations and the public. This information is regularly posted on the website of the ministry.

After the approval of the Action Plan within the National Environmental Plan in order to inform the public, annual environmental reports (on water provision and water consumption; protection of water resources and its utilization; protection of the atmosphere, quality and quantity indicators of pollutants thrown into the atmosphere, as well as utilization of transports; information on meterological stations; laboratory control over the pollution of the atmosphere; forest resources, national parks and preserves; wastes and their creation, utilization and neutralization, raw material and waste resources; geological development work; control over environmental protection and expenditures; international comparisons regarding the environment, etc.) are published and disseminated in Azerbaijani, Russian and English. Since 2000 these reports have been prepared in accordance with the relevant reporting forms of the European Union.

Republic of Cyprus

AUDIT OFFICE OF THE REPUBLIC OF CYPRUS
NATIONAL AUDIT SUMMARY

1. SCOPE OF THE AUDIT

Although Cyprus, being a small country, is not considered as a significant producer of greenhouse gases (GHG) emissions, it is one of the countries that, due to its location, is severely affected by the adverse consequences of climate change, and has experienced a significant rise in temperatures in the last 100 years, accompanied by a large decrease in precipitation.

These had an adverse effect on, among other things, agriculture, the island's water reserves and the condition of forested areas. The depletion of water reserves during the last two years, following an extended period of drought, was so significant that the Government had to implement severe and costly measures to ensure the adequacy of water supply in households, such as the importation of drinking water from Greece and the imposition of cuts in the supply of water to households. In the meantime, the construction of additional de-salination plants is in progress and this is expected to limit the dependence of the supply of drinking water on weather conditions. Meanwhile, the threat of desertification became obvious, as trees in forests began to die, underground water reserves are threatened by the ingress of sea water and crop yields fell dramatically.

The following pictures, which depict the water levels in one particular dam in 2004 and 2008, are indicative of the situation that prevailed in the island.
Therefore, climate change and its consequences are of great concern to Cyprus and our Audit Office responded positively to the EUROSAI WGEA invitation to participate in a european audit on climate change.

The scope of the audit was to establish what measures have been adopted to address the climate change problem and to assess their implementation, monitoring and effectiveness.

2. LEGAL FRAMEWORK – INTERNATIONAL OBLIGATIONS

The Republic of Cyprus ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 15.10.1997, and the Kyoto Protocol on 16.7.1999, and is therefore committed to formulate, implement, publish and regularly update a national programme containing measures to mitigate climate change. However, Cyprus is neither an Annex I party to the Convention, neither an Annex B party to the Protocol, and hence

has no quantifiable commitments for the reduction of GHG emissions. As an EU member, it is subject to the provisions of Decision 280/2004/EC concerning a mechanism for monitoring community greenhouse gas emissions and for implementing the Kyoto Protocol, as well as Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community.

Also, through the new Community legislation on climate and energy covering the period 2013 – 2020, Cyprus has an obligation to reduce emissions from installations operating in the Emission Trading System by 21% as compared to the emission rights granted during the period 2004 – 2007, and emissions from all other sectors by 5%, as compared to 2005 GHG emissions levels.

National legislation has been fully harmonized with international conventions and the obligations of the Republic. The provisions of the new Climate-Energy legislation package of the EU are expected to be transposed to national law soon.

3. NATIONAL SYSTEM FOR THE MITIGATION OF CLIMATE CHANGE EFFECTS

3.1. Jurisdiction

The Ministry of Agriculture, Natural Resources and Environment (MANRE) is the governmental body responsible for the development and implementation of environmental policy in Cyprus, as well as for the provision of information concerning the state of the environment in Cyprus, in compliance with relevant requirements defined in international conventions, protocols and agreements. The Environment Service of the MANRE acts as the coordinating authority within the field of climate change in Cyprus. Its responsibilities include defining a national strategy and policies aiming at mitigating the effects of climate change, gathering information regarding the implementation of the national strategy and representing the Republic on an international level, on matters concerning climate change.

Policies and measures aiming at the mitigation of climate change effects and specifically the reduction of GHG emissions have been designed and are being implemented in various sectors while jurisdiction for these measures is distributed among several Ministries, Departments and Institutions (Ministry of Commerce, Industry and Tourism, the Energy Service, the Transmission System Operator, the Ministry of Communications and Works and the Ministry of Interior). The Environment Service has no executive or legal authority for the monitoring and control of these bodies, regarding the implementation of the measures and policies that fall under their jurisdiction, as the only responsibility assigned to it is the management of the Emission Trading System.

Audit finding: The wide distribution of the jurisdiction over measures to mitigate climate change to several Ministries/Departments, with no central authority having the overall control of their management and implementation, is considered to be a serious weakness of the system.

3.2. National strategy – measures to combat climate change

The Strategic Plan for the Reduction of Greenhouse Gases Emissions was approved by the Council of Ministers on 10.9.2003. The Plan provides for a series of measures in the sectors of electricity generation, industry, transport, waste, and the residential / tertiary sector.

The Minister of Agriculture, Natural Resources and Environment was authorised by the Council of Ministers to coordinate the gradual implementation of the Plan, in cooperation with all public and private bodies involved, provided that the Plan was modified to take into account the views of these bodies. This coordinating role has been assigned to the Environment Service.
The Plan was not revised / modified as provided in the relevant decision of the Council of Ministers, resulting in the Ministry of Commerce, Industry and Tourism not accepting it due to the different approach it adopts towards the reduction of GHG emissions.

The Environment Service of the MANRE submits every two years the Policies and Measures report, as required by Decision 280/2004/EC. The Service considers this report to be an update of the National Strategic Plan, yet no political decision has been made to ratify it as such. This report is compiled on the basis of the measures included in the strategies of various Ministries, which are approved by the Council of Ministers. However, the report as such is not submitted to the Council of Ministers for approval.

Appendix I summarises the policies and measures adopted by the various bodies to combat climate change, in the sectors of electricity generation, residential and tertiary sector, industry, transport and waste. The planned targets of each measure are presented under a scenario "with measures" (including implemented and adopted policies and measures) and a second scenario "with additional measures" (including planned policies and measures), as defined in Decision 166/2005.

Audit findings: Although a comprehensive plan to mitigate climate change effects has been prepared and approved, and policies and measures are formulated and communicated to the European Commission, there is no effective mechanism in place to monitor their implementation. Also, it seems that the absence of quantified commitments for the reduction of GHG emissions "encourages" a less formal approach in dealing with the problem.

The Environment Service does not officially receive any update from the bodies responsible for implementation measures, and has limited its role to information gathering and the calculation of indicators as required by Decision 280/2004/EC.

Although Cyprus has quantifiable targets regarding the reduction of GHG emissions during the period 2013 – 2020, which are converted by applying a linear factor into yearly targets, no monitoring and control mechanism, which will ensure timely implementation of declared measures and policies, has yet been established. We believe that the timeframe for achieving the set targets is very tight and more effective measures should have already been taken.

3.2.1. Renewable Energy Sources

Directive 2001/77/EC of the European Parliament and of the Council of the European Union, regarding the promotion of electricity produced from renewable energy sources in the internal electricity market, sets an indicative target of 6% for Cyprus, for the contribution of electricity produced from renewable energy sources (RES) to gross electricity consumption, by 2010. Also, the national contribution of RES in the final energy consumption should be doubled, from the 1997 level of 1,9%, to 3,8% by 2010. These targets were incorporated into the Action Plan for the Reinforcement of Renewable Energy Sources 2002 – 2010, which was approved by the Council of Ministers in 2002. According to the Action Plan, in order to achieve the 6% target by 2010, it would be necessary to set up wind parks, biomass plants and photovoltaic systems with capacity of 109MW, 9,51MW and 4,21MW, respectively, with an anticipated contribution of 4,45%, 1,48% and 0,11%, respectively. It is noted that Directive 2009/28/EC of the European Parliament and of the Council of the European Union on the promotion of the use of energy from renewable sources, sets a compulsory target for the share of energy from RES in gross final energy consumption in Cyprus, of 13% by 2020.

The main policy implementation tool for achieving the national targets regarding RES utilisation is the Fund for promoting energy conservation and the utilisation of renewable energy sources. The Fund was established by Law no. 33(I)/2003 and its proceeds from a levy imposed on every electricity bill, based on consumption, are used to finance programmes, which are approved by the Council of Ministers, for the promotion of RES and energy conservation. The amount of money allocated to the various schemes financed through these programmes was determined based on their cost of implementation, the technology available and their contribution in RES generation. From 2004, when the fund became operational, until August 2009, more than 43.500 applications were submitted and a total of €39,85 million was granted to beneficiaries. The beneficiaries include both households and small scale investments in RES, as well as large investors, such as wind farm builders/operators.

As far as wind farms are concerned, which are the largest contributors to electricity generated from RES, it was noted that despite the initial approval of installations of a total capacity of138MW, most of which were issued with the necessary permits, so far no project has materialised. The delays noted in the process of setting up wind parks are due to procedural delays in obtaining the necessary permits from governmental departments, the opposition of the affected Community Boards and errors in wind power estimations. The only wind farm project that is being implemented relates to a 20-year subsidisation contract for the construction and operation of a wind park with an 82MW capacity. Construction work commenced in August 2009 and is expected to be completed in mid-2010, while according to the provisions of the governmental grant scheme, installations of additional total capacity of 83MW will be constructed by 2013.

In addition to the wind parks, eight biomass units with a total capacity of 4,4MW have been constructed in 2008. Photovoltaic systems installed, of a total a capacity of 2,6MW (approx. 0,06% contribution), and the current contribution of biomass installations is 0,88%.

According to data received from the MCIT, the percentage of RES in the final energy consumption has reached 4,5% in 2008, and therefore the indicative target of 3,8% has been achieved. On the other hand, electricity generated from RES amounted to a mere 0,5% as opposed to the indicative target of 6%. DG Energy and Transport informed the Cypriot government on 3.6.2009 that the Commission is examining the possibility of initiating infringement procedures since, in its view, the country is in breach of the provisions of Directive 2001/77/EC. In particular, the Commission notes that during the period 2004 – 2006 Cyprus has neither achieved an increase in the contribution of RES in electricity production nor marked significant progress regarding the efforts made to achieve the 2010 target. In its reply, the Republic of Cyprus outlines the steps and measures taken since its accession in order to meet the targets set, and states that in its view, the target may be met by 2010 and no case of infringement of the Directive may be substantiated.

Audit findings: It is almost certain that, due to the delays observed in the construction of wind farms, the indicative target of 6% of electricity production from RES will not be achieved by 2010.

In addition, it is our opinion that more effective measures should have already been taken towards the achievement of the national target set in Directive 28/2009, which provides for a 13% share of energy from renewable sources in gross final consumption of energy by 2020.

3.2.2. Use of Natural Gas in Electricity Production

The Government has been considering the introduction of natural gas (NG) to Cyprus since 1998. Based on studies carried out, the Council of Ministers decided, on 6.2.2003, to approve the option of importing liquefied natural gas (LNG) for the production of electricity and the establishment of a host and deliquification terminal. The implementation of the project was assigned to the Ministry of Commerce, Industry and Tourism and the introduction of the NLG was to be completed around the end of 2008 or the beginning of 2009.

The Electricity Authority of Cyprus (EAC) adjusted its development program accordingly and decided the construction and operation – from 1.1.2009 – of three combined cycle electricity production units, with capacity of 220 MW each (operating either with LNG or Diesel). The first unit is in operation since July 2009, the second one is expected to be put in operation on July 2011 and the third unit is scheduled to be put in operation between 2013 -2014. At the same time, modification works have began on the three existing units of EAC, of 130 MW capacity each, so that they will also be able to operate with NLG.

Serious delays were observed on the implementation of the decision to introduce NLG and as a result, by the beginning of 2009, when the introduction was scheduled, no substantial progress was made. In view of the above, on 31.3.2009 the Council of Ministers decided to assign the responsibility for the establishment of the ground terminal reception station, storage and deliquification of LNG, to EAC. According to the EAC's Action Plan, the operation of the LNG ground station is scheduled for March 2014.

3.3. Actual emissions, Scenarios and projections

The actual emission levels show an increasing trend during the last five years, with the actual rate of increase between 2003 and 2007 reaching 8,25%.

The policies and measures report submitted every two years to the European Commission pursuant to Article 3(2) of Decision 280/2004/EC, includes GHG emission projections under three scenarios as defined in Decision 166/2005. Future emissions have been estimated for a "business as usual" scenario, for a scenario "with measures" and a scenario "with additional measures".

The projected total GHG emissions for 2020 under the business as usual scenario amount to 16.907 kt CO2 equivalent, which represent a 69,4% increase as compared to 2007 measurements, and 210,3% increase as compared to 1990 values. If the scenario "with measures" is adopted, then it is estimated that by 2020 a 40% reduction of emissions, as compared to the 'business as usual' scenario will be achieved, and if the scenario "with additional measures" is implemented, then the reduction is estimated at 58%.

Audit finding: Actual emissions show an increasing trend. Estimates for their future reduction are based on the full implementation of the measures mentioned in Appendix I, however, as already mentioned, no central authority is monitoring this and significant delays in the implementation of measures are observed in various sectors.

3.4. National allocation plan

The National Allocation Plan (NAP) for the period 2008 – 2012 has been prepared by the Environment Service of the Ministry of Agriculture, Natural Resources and Environment (MANRE) of the Republic of Cyprus, in accordance with the provisions of Article 9 of Directive 2003/87/EC, and has been approved by the European Commission. The NAP covers 13 installations that lay within the scope of the Directive. Three of these are power plants run by one operator, the Electricity Authority of Cyprus (EAC), two are cement work factories, and the remaining eight are ceramics factories producing bricks or tiles. A new entrants reserve was also created, based on known and anticipated developments in the relevant industry sectors.

Following the Commission's decision dated 18.7.2007 regarding a 23% reduction in the annual emission rights allocated, it was decided to make a distinction between process emissions and combustion emissions. Since reducing process emissions was considered technically and economically unfeasible, it was decided not to impose reductions in the predicted CO_2 process emissions and reduce combustion emission rights proportionally.

3.5. Emission Trading System

The Emission Trading System is managed by the Environment Service, in accordance with the provisions of Law no. 132(I)/2004, which was enacted in order to transpose the provisions of Directive 2003/87/EC into national legislation.

As a special arrangement to account for the fact that Cyprus is not eligible to issue Assigned Amount Units (AAUs) under the Kyoto Protocol, Article 63a of Commission Regulation (EC) No. 2216/2004 requires that the national registry of Cyprus is maintained in a consolidated manner with the Community Registry. In order to accommodate this consolidation, the development and installation of an updated version of software of the Community Registry was required.

In February and April 2009, the Commission informed the Cypriot authorities that the installation of this software is delayed and the new functionalities are not yet available. As a result, actions of allocation, verification and surrender are currently carried out in paper form, so as to conform to the obligations set out in Directive 87/2003/EC.

Audit finding: As a result of the delay in the installation of the updated software of the Community Registry, the electronic version of the national registry for the Emissions Trading System cannot be used yet.

3.6. Kyoto Protocol Mechanisms

Since Cyprus is not an Annex I party to the UNFCCC, it may host projects within the scope of the Clean Development Mechanism during the first commitment period of the Kyoto Protocol (2008 – 2012). The Environment Service, as the competent authority, has issued letters of approval for seven projects, for which the final approval of the UNFCCC has not yet been obtained. All projects are in the construction phase and are relevant to the sectors of agriculture and energy. The projected total emissions reduction arising from these projects until the end of the first commitment period amounts to 1.036.514 tonnes of CO_2 equivalent.

The Joint Implementation mechanism has not been utilised, since Cyprus is not an Annex B signatory to the Protocol.

4. MONITORING SYSTEM

4.1. Structure

In the context of its overall responsibilities, the Environment Service of the MANRE has the general responsibility for the national GHG inventory. Within this framework, as well as for the establishment of the National System foreseen in Decision 280/2004/EC, the Environment Service prepares/ compiles the annual national inventory, which entalis the selection of methodologies, data collection (activity data and emission factors), data processing and archiving, as well as the implementation of general quality control procedures and the development of an inventory QA/QC plan, in accordance with the provisions of the Good Practice Guidance issued by the Intergovernmental Panel on Climate Change (IPCC).

4.2. Reporting

The Environment Service is the body responsible for the coordination, data collection (in cooperation with the Ministries involved) and the compilation of climate change reports.

The Republic of Cyprus bears no international commitments for report submissions based on the Kyoto Protocol or the Framework Convention, yet it is bound by commitments towards the EU. As per Decision 280/2004/EC, it should submit to the European Commission annual inventory reports, as well as reports every two years on the policies and measures adopted to counter climate change effects. Article 3 of the Decision specifies that these reports should be submitted by January 15th of each year (inventory reports) and March 15th of each second year (for the policies and measures reports).

The sectors covered by the reports, according to the IPCC guidelines, are energy, industrial processes, solvent and other product use, agriculture, land use, change in land use and forestry, and waste.

The data used for the preparation of the annual inventory report are mainly obtained from published official reports and bulletins of the Statistical Service of Cyprus and statistical departments of the Ministries involved. Data are collected mainly through telephone and electronic contact with the responsible bodies. Where no data is available, assumptions are made in cooperation with the Department of Labour Inspection (Ministry of Labour and Social Insurance), so that projections may be made.
The data collected are published on the website of the Environment Service, while it is planned to publish brochures for the public.

The inventory reports are prepared in accordance with the IPCC guidelines and the requirements of Decision 280/2004/EC. There are no national guidelines or legislation regulating the preparation of these reports. National reports on policies and measures taken for the reduction of GHG emissions are prepared according to the requirements of Decision 280/2004/EC.

Audit finding: Delays occur in the submission of the required reports to the Commission. As a result, warning letters were sent by the Commission in 2006, 2007, 2008 and 2009. In its replies to the above letters, the Environment Service expresses the view that since the Republic of Cyprus is neither an Annex I party to the UNFCCC nor an Annex B party to the Kyoto Protocol, it bears no commitment as to the submission of GHG emission reports, but submits these voluntarily so as to contribute to the Community efforts to combat climate change. Our Office suggested that, since this opinion is obviously not shared by the Commission, the matter should be investigated further.

APPENDIX I

Table 1.
Policies and measures included in the "with measures" and "with additional measures" scenarios.

		With measures	With additional measures
Policy A. Electricity Generation			
A1	RES	Constant 6% from 2010	From 5% in 2010, to gradual increase to 13% by 2020
A2	NG	Gradual increase of NG in energy from 48% in 2016 to 80% in 2020	Gradual increase of NG in energy from 48% in 2014 to 80% in 2018
A3	Improvement in distribution system	Improvement of 0.1% annually -> reduction in emissions from 2008	Improvement of 0.2% annually -> reduction in emissions from 2008
Policy B. Residential and Tertiary Sector			
B1	Energy savings	5% constant from 2010	From 5% in 2010 to gradual increase to 20% by 2020
Policy C. Industry			
C1	Merging of cement factories	Reduction 5% from 2011	Reduction 15% from 2011
C2	Energy savings	5% constant	From 5% in 2010 to gradual increase to 20% by 2020
C3	Alternative fuels	Increase by 1% annually	Inrease by 2% annually from 2010
Policy D. Transport			
D1	Promotion of small cars in urban transport	Constant reduction 0.5%	Annual reduction of 0.5% from 2008
D2	Promotion of public transport	Constant 2% reduction in emissions	Annual decrease in emissions of 0.5% from 2010
D3	Biofuels	Contant 0.1% reduction in emissions	Gradual increase from 1.5% in 2008 to 10% in 2020
D4	Withdrawal of vehicles older than 20 years old	Annual contribution in reduction in emissions of 1%	Annual decrease in emissions of 1% from 2010

		With measures	With additional measures
Policy E. Waste			
E1	Recycling	Constant at 20% of packaging waste	Constant at 20% of packaging waste
E2	Methane recovery	50% of all controlled (84%) from 2010	50% of all controlled (84%) from 2010
E3	Management of uncontrolled disposal sites	Annual decrease of GHG by 5% from uncontrolled from 2010	Annual decrease of GHG by 5% from uncontrolled from 2010

Republic of Estonia

STATE'S EFFORTS OF REDUCING GREENHOUSE GAS EMISSIONS

International obligations binding upon Estonia

According to the UN Framework Convention on Climate Change (Estonia ratified it in 1994) and the Kyoto Protocol, through 2008 – 2012 Estonia is obligated to reduce greenhouse gas emissions (hereinafter GHG) by 8% in comparison with the level of 1990. Estonia has achieved the reduction required in the Kyoto Protocol: in comparison with the level of 1990 the GHG have fallen nearly 47%. The main reason lies in the volumes of industrial output which have fallen considerably. At the same time the carbon intensity of the Estonian economy still remains very high.

In addition to the obligations assumed in the Kyoto Protocol, in the Climate Package approved at the end of 2008 the European Union set to reduce the GHG by 20% in comparison with the level of 1990 (30% if an agreement is reached at the conference of the contracting parties to the Framework Convention on Climate Change in Copenhagen in December 2009). Out of the reduction obligations the stricter rules of GHG trading affects Estonia, especially energy production, the most: due to the GHG quota production of electricity from oil shale will be more expensive in the EU's energy market to be opened in 2013 and thus, less competitive.

Greenhouse gas emissions in Estonia

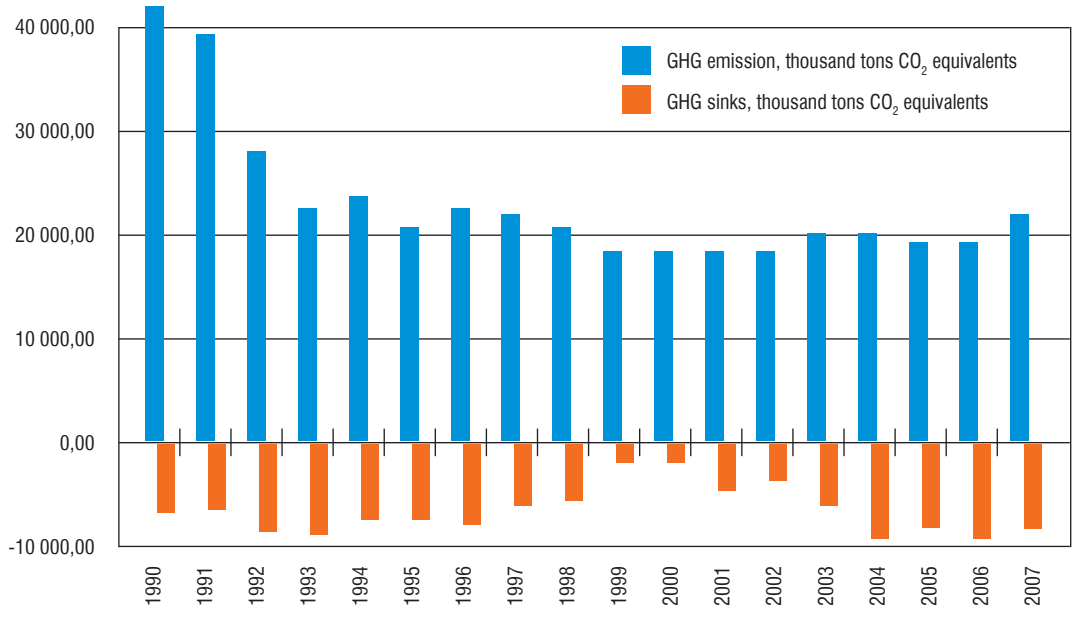
In 2006 greenhouse gas emissions amounted to: 18.9 million tons of the CO_2 equivalent in Estonia, 14 tons of the CO_2 equivalent per resident (22 million tons and 17 tons, respectively, in 2007).

Estonian greenhouse gas emissions amounts to 0.4% of the quantity of the greenhouse gas emissions of the EU 27, but the emission per resident is higher than the average of the European Union.

86% of the greenhouse gas emissions in Estonia is created upon production of electricity and heat, because the main raw material is oil shale which has a high carbon content.

The GHG emissions and sinks in Estonia have been given in Chart 1.

Chart 1. Emissions 1990-2007 submitted in GHG inventory reports



Source: 2009 GG inventory

MANAGEMENT OF ACTIVITIES AIMED AT REDUCTION OF GREENHOUSE GASES

State's overview of greenhouse gas emissions needs improvement

As a party to the UN Framework Convention on Climate Change Estonia is obligated to calculate the GHG and absorbed quantities by sectors of the economy (GHG inventory). The Ministry of the Environment is responsible for inventories and reports. In order to carry out the inventory agreements are signed with experts most of whom work in research institutions.

According to the National Audit Office (NAO), the calculation (inventory) of GHG is accurate and reliable if:

- the emissions or absorbed quantities of greenhouse gases are calculated on the basis of all the sectors where they may be generated[1];
- the inventory report complies with the requirements set out in the applicable manual of the UN Climate Secretariat.[2]

In the course of the audit the NAO found that Estonia's GHG may be higher than declared. The audit showed that the GHG generated have not been taken into account in all sectors of the economy or not all pollutants generated have been covered. For instance, the GHG caused upon the use of solvents, in the metal industry and upon production of glass have not been assessed. The reasons for not covering the data mentioned by the persons who carried out the inventory include poor availability of source data and lack of methodology. Also the fact that the inventory data of previous years has been extensively corrected afterwards indicates that there are deficiencies in the calculation of GHG.

Furthermore, the NAO found deficiencies in methodology of calculating GHG sinks arising from forestry, as a result of which the share of sinks has been estimated higher than it actually is. Also, the calculation of CO_2 emissions and absorption arising from land use needs improvement, because not all quantities of the gases

1. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reporting Instructions.

2. Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amount, the document also sets out additional conditions.

generated and absorbed have been assessed. In the framework of its checks[3] the UN Climate Secretariat has for several years in a row pointed out that Estonia uses country-specific (TIER 2) methodologies too little upon carrying out inventory checks of forestry and land use as well as in other areas. At the same time the UN Climate Secretariat has confirmed that by and large the Estonian inventory is in conformity with the requirements.

According to the NAO, the problems related to the quality of the inventory checks are caused primarily by the fact that the Ministry of the Environment has underestimated the importance of the area and there is a lack of coordination and resources. Development and improvement of inventory checks has not been a priority for the Ministry of the Environment.

The state does not know how much the greenhouse gas quantities could be reduced and how much it is necessary to reduce them

Adequate and realistic goals related to GHG can be set only if various ministries cooperate and the impact of the implemented and planned activities on the total GHG emission as well as future forecasts are known. Activities of a greater impact should be implemented first, because otherwise the state's as well as undertakings' money is wasted. The goals related to the GHG should, in addition to the overall action plan, be written in the action plan of the sectors influencing GHG.

Estonia lacks a proper action plan for reduction of greenhouse gas emissions as well as the goal of how much the emissions should change in the future. In the reports submitted to the UN Climate Secretariat and the EU the Ministry of the Environment consistently refers to the GHG reduction programme approved in 2003 and the measures described therein. However, in the context of drawing up the national allocation plan the same ministry has in 2006 said to the European Commission that the document requires immediate updating, because the source data about the economy and emissions used upon making calculations are not up to date and the listed measures for reduction of greenhouse gas emissions should be reviewed as well.

The absence of a long-term GHG reduction plan and the uncoordinated activities arising therefrom would not be such a huge problem if each action plan affecting the GHG would set out its own GHG-related goals. However, the NAO's analysis showed that there are no clear GHG-related numerical goals in the documents and mostly it has not been evaluated how extensively the activities of these plans affect the generation of GHG. In development plans GHG have in general terms been mentioned next to activities which potentially have a GHG-reducing impact: for instance, according to the National Rural Development Plan, the growing of energy wood has a positive impact on the reduction of GHG; according to the National Transport Development Plan, development of public transport reduces emissions. According to the NAO, such a status of the development plan shows that the Ministry of the Environment has been unable to coordinate the setting of goals for reduction of GHG in various national strategies.

The state's failure to coordinate the activity results in the risk that emissions cannot be controlled and instead of the lead gained at the expense of the reduction of production in comparison with the 1990's the stricter EU requirements will start to hamper the development of the economy and carbon-intense production will no longer be competitive. According to the recent inventory report, GHG rose by 2007 by 17% in comparison with 1999. The goals formulated in the EU's Climate and Energy Package and recent decisions to cut the GHG trading allocation plan showed that the EU is demanding that all the member States make efforts to reduce GHG. In spite of clear signals various Estonian ministries have not yet come to a common understanding that GHG must be reduced.

Since the state does not know how effective the measures of reduction of GHG have been so far, there is a risk that ill-considered and wrong choices will be made. For instance, since production of electricity from oil shale

3. Reports of the individual review of the greenhouse gas inventory of Estonia submitted in 2006, 2007 and 2009.

will no longer be competitive in the future due to its high carbon intensity, the state is considering production of nuclear energy for billions; at the same time the state does not know how much of the future energy needs could be covered through energy efficiency or using renewable energy sources.

Forecasts of greenhouse gas emissions are not realistic

The state needs GHG forecasts in order to know whether one is moving in the right direction in controlling GHG through the existing measures.

Although future scenarios have been submitted to the UN Climate Secretariat since 1998, no thorough analyses have been carried out in Estonia yet. In 2007 Estonia undertook to submit to the European Commission more detailed scenarios which would, among other things, separately describe the impact of each measure on the GHG emissions and generation of GHG by sources in 2010, 2015 and 2020. The submitted forecast did not comply with the requirements of the EU legislation as a result of which the European Commission brought an infringement procedure against Estonia in October 2007.[4]

Estonia accepted the accusations of the Commission and promised to eliminate the deficiencies of the report by the end of 2008.

The last updated version of the forecast was submitted to the European Commission by May 2009. According to the NAO, it still contains serious deficiencies: the modelling focused only on predicting the future of energy, failing to take into account the impact of the measures suggested in the national strategies. Furthermore, upon modelling energy not all conditions characteristic of Estonia and substantial known developments, e.g. the opening of the energy market, electricity export, expansion of use of oil shale, etc. were taken into account. Therefore the NAO finds that the current forecasts do not indicate what the GHG in Estonia could be like in the future.

The GHG forecasts are in principle similar to impact assessments of activities in the strategies. If upon preparation of the GHG reduction action plan or sector strategies it had been evaluated how much the planned activities may impact GHG, the future figures could be put together quite easily on the basis of this data. But since this has not been done, it is the duty of the Ministry of the Environment to organise the assessment of the effectiveness of the measures affecting GHG quantities in the short term and long term. Other ministries have so far not contributed to preparation of the forecasts.

Without knowing the trends the Ministry of the Environment is unable to prepare a new action plan for reduction of GHG.

TRADING IN EMISSION ALLOWANCES

The Estonian National Allocation Plan of the first trading period of the EU (2005 – 2007) for emission trading was prepared on the initiative of the Ministry of the Environment in 2004 and according to it the quantity of national emission allowances was 56,859,003 tons of the CO_2 equivalent over a period of 3 years (approx. 20 million tons a year). Since undertakings emitted much less, they could sell the emission allowances. The EU's emissions trading system helps to reduce emissions if the income received from trading is invested in more environmentally friendly technologies; at the same time EU legislation does not specifically obligate to do so. The Estonian state did not order undertakings to invest the money obtained from trading in reducing GHG. When the Member States of the EU submitted to the European Commission their national emission allowances applications for upcoming trading period beginning in 2008 (2008-2012), the applications of many states (incl. Estonia) were not approved, because it was found that the number of allowances applied for was too high.

The state has failed to use allocation plan as a tool for promoting greenhouse gas emission reductions

The Emissions Trading Directive of the EU demands that upon drawing up an allocation plan the Member State must proceed from the goal of reduction of carbon intensity, i.e. upon distribution of the allowances the actual potential of undertakings for reduction of emissions must be taken into account. A reserve must be

4. Infringement procedure No. 2007/2349.

planned for newcomers and joint implementation projects, which would not restrict implementation of the planned investments or the planning of new ones.

Under the leadership of the Ministry of the Environment Estonia has prepared two allocation plans by now. In the second trading period the state applied to the European Commission for an allowance that was nearly 25% higher that that of the first period. In both cases the national total greenhouse gas emission allowance quantity was set in the proposal for the allocation plan using the bottom-up method, i.e. taking into account how much emission allowances the undertakings asked for their activities. The undertakings' possibilities of reducing pollution were not analysed. In the second trading period the growth rate resulting from the expected growth of power consumption and power exports and expansion of production was added to the emissions of installations.

The European Commission did not agree with the application submitted by Estonia and demanded in May 2007 that the total amount be cut by nearly a half. Since trading in green house gas emissions was to start already in January 2008, the Ministry of the Environment had to revise its former decisions in only a few months. The overall allowance for Estonia had been prescribed by the European Commission by the decision to cut the allocation plan and it was the duty of the Ministry of the Environment to decide how to divide it between undertakings. The negative consequence of the rushing was an insufficiently analysed and negotiated decision to cut and the European Commission's refusal to approve the reserve. As a result thereof undertakings do not know what kind of efforts the state is expecting of them or what can be expected in the future. Upon drafting the cut of the initial allocation plan, the Ministry of the Environment managed to consult undertakings, the Ministry of Economic Affairs and Communications and the European Commission only a little, but failed to carry out a new disclosure procedure. The allocation plan of the second training period was finally approved by the European Commission nearly a year after the actual deadline. The reserve of newcomers has not been determined to date, which means that new undertakings will have to buy the required quota in the market.
Estonia contested the allowance cutting decision of May 2007 in the European Court of Justice based on the reasoning that the European Commission may approve or reject national allowance proposals, but does not have the competence to prescribe the total allowance. In September 2009 the ECJ confirmed the correctness of Estonia's positions and annulled the decision to cut. However, this does not automatically mean that the allowance of Estonian undertakings will increase: Estonia has to negotiate with the European Commission again and convince them that the allocation of the additional allowance is justified. Commenting on the judgment the EU's Commissioner for Environment said that in allowance negotiations the Commission proceeds from certified emissions and based on the verifications of 2005-2008 it can be claimed that the effective division is correct.

In the case of either allocation plan the Ministry of the Environment did not limit the number of emission allowances; neither did it order the undertakings to make environmental investments using the money earned from the sale of allowances. The state wanted to give undertakings the opportunity to earn from GHG trading in order to support economic growth with it. The state also did not seize the opportunity of keeping a portion of the allowance and to finance the functioning of the system for it or support technological innovation by the state. Instead, it was decided to pay for the maintenance of the expensive trading register from the state budget in both trading periods. The state budget also covers the costs of verification of emissions, which in other states are paid by undertakings.
In addition, serious deficiencies have been found in the process of verifying GHG emissions upon auditing the organisation of the EU's trading system.

National Audit Office's recommendations to the Minister of the Environment:
Since the GHG accounting serves as the basis for making climate and energy policy decisions the Ministry of the Environment must ensure, in addition to its area of government that the data gathered by the Ministry of Economic Affairs and Communications, the Ministry of Agriculture and the Ministry of Finance and the data gathered by their agencies be available and usable for the inventory and the changes in the data be reasoned.

In the inventories all areas where the GHG are generated must be taken into account. To commission additional surveys, for instance, for identification of specific Estonian factors and assessment of uncertainties. To pay attention first of all to improvement of the practice of calculation of GHG of Land Use and Land Use Change and Forestry (LULUCF).

The Ministry of the Environment must take the leading role in preparing the new long-term GHG action plan. To that end an inter-ministerial working group should be formed with the goal of analysing the measures described in the existing strategies and their compliance with the goals of reduction of GHG.
In order to support the preparation of the long-term strategy for reduction of GHG fundamental research must be carried out in all the economic sectors influencing GHG levels regarding what changes have taken place in GHG levels in different sectors and what have been the main causes of the changes. The goals of reduction of GHG must be set in the national strategies of all sectors influencing GHG levels.

The Ministry of the Environment as the supervisor of the strategic environmental impact assessment must make certain in the case of strategies made in the future that if the activities of the strategy may influence the GHG levels created in the state, the impact on the GHG levels must be calculated in the course of the strategic environmental impact assessment as well.

In order to ensure the availability of sufficient funds for maintaining the EU's GHG trading register a fee must be charged for using the trading register to an extent that would cover the costs of maintenance of the register.

Audit methodology
In order to answer the main questions of the audit the following activities were performed by NAO:

The following was analysed:
- Estonian and EU legislation, policy documents, guidelines developed by the European Union, the UN Climate Secretariat (UNFCCC Secretariat) and the Intergovernmental Panel on Climate Change (IPCC), and the practice of other states upon carrying out inventories and implementing the EU emission trading system.
- inventory reports and their annexes submitted to the UN Climate Secretariat by Estonia (2008 –2009);
- inventory review reports by UN Climate Secretariat (2005 – 2008);
- forecasts of greenhouse gas emissions submitted by Estonia to the European Union;
- Sector-based development plans and strategies (the environment, energy, forestry, agriculture, waste, transport, etc.);
- the EU emissions trading allocation plans, their explanatory memoranda and minutes of meetings, decisions of the European Commission in connection with preparation of the allocation plan for 2008 – 2012 and Estonia's complaint to the European Court of Justice in connection with the aforementioned decision of the European Commission;
- contracts made for preparation of the inventories and forecasts of the Ministry of the Environment and the Environment Information Centre and for other development activities of the area;
- the costs of the Ministry of the Environment, the Environment Information Centre and the Environmental Board related to the GHG system.
- Trading licences issued to the undertakings included in the allocation plan.

Interviews were carried out in the Ministry of the Environment, the Environmental Information Centre, the Ministry of Economic Affairs and Communications, the Tallinn University of Technology, the University of Tallinn, AS Estonian Energy, the Stockholm Environment Institute Tallinn Office and AS Metrosert.

The installations (50) included in the allocation plan of the EU trading system and ambient air specialists of the Environmental Board who carry out certifications were questioned.

NAO reviewed CO_2 reports submitted by undertakings to the Ministry of the Environment in 2008.

NAO reviewed CO_2 emission verification reports of 2006, 2007 and 2008 and pollution reports submitted by undertakings regarding emissions in 2005.

Israel

THE TREATMENT OF GREENHOUSE GAS EMISSIONS IN ISRAEL

FOREWORD

1. One of the conditions for life on Earth is greenhouse gases in the surrounding atmosphere: gases that trap some of the longwave radiation emitted by the earth and transformed into heat[5]. Without these gases the temperature on earth would plummet from an average of 15 degrees Celsius to an average of 18 degrees Celsius below zero. However, too much greenhouse gas in the atmosphere is liable to cause global warming - a process which many scientists believe has indeed been happening in the last 150 years, and especially in the last thirty years. Fuel combustion is the primary cause of the increased concentration of greenhouses gases in the atmosphere[6].

It is predicted that if the current rate of warming continues the average temperature of the planet will rise by 1.5-3.5 degrees Celsius within the next 30-40 years. Extreme weather conditions will multiply, including storms, floods, and droughts. Glaciers will melt and the sea level will rise in the next 100 years, which will cause the inundation of coasts and low-lying areas. In various regions, precipitation will decrease and cause a growing shortage of water for drinking and agriculture.

2. In the last two decades efforts have been made at the international level to lower the emission of greenhouse gases and prevent global warming: 154 states signed the 1992 United Nations Framework Convention on Climate Change (hereafter - the Framework Convention), which aimed to stabilize globally the concentration of greenhouse gases in the atmosphere and to reduce them to a level that does not endanger the climate system. Since then a number of international conferences have taken place to apply the principles of the Framework Convention. Israel ratified the Climate Convention in 1996 and established an inter-ministerial committee to draw up a governmental policy for reducing greenhouse gas emissions.

The "Kyoto Protocol" was formulated at the third conference of the Climate Convention, which took place in December 1997 in Kyoto, Japan, and in which 161 countries participated, including Israel. The Protocol demanded that developed countries[7] reduce greenhouse gases by 2012 to the level that had been measured in 1990. It created a mechanism to help them reach their goals, including a clean development mechanism -

5. The main greenhouse gases are: carbon dioxide (CO_2), produced mainly by fuel combustion of electric power stations, industry, and motor vehicles; methane (CH_4), produced by waste deposits and sewage treatment installations caused by the decomposition of organic waste without oxygen, from the digestive processes of animals, and rice growing in flooded paddies; nitrous oxide (N_2O), produced by fuel combustion and microbial processes in the ground and in water affected by the use of nitrogen-based fertilizers; chloro-fluoro-carbons (CFCs) - freon gases, which harm the stratosphere's ozone layer; and ozone (O_3) produced in the lower atmosphere as a result of chemical reactions involving air pollutants and solar radiation.

6. See the website of the Environmental Protection Ministry: www.sviva.gov.il

7. The Climate Convention classifies all participating countries as developed or developing countries. Developed countries are industrialized countries which had in the past contributed to the increase in greenhouse gases in the atmosphere and who had the economic and institutional ability to deal with the problem. All other countries, and Israel among them, were classified as developing countries.

CDM[8]. At the 13th Conference which took place in Bali, Indonesia on December 2007, the participants decide to defer negotiations on greenhouse gas reduction goals for the period following 2012 to the Copenhagen Conference in December 2009.

3. In January 2009 several countries represented in the Organization of European State Audit Institutions (EUROSAI) signed a joint agreement to conduct audits of greenhouse gas reduction[9]. In that framework the State Comptroller's Office of Israel examined how Israel deals with greenhouse gas emissions[10]. The audit plan was drawn up together with the other member states and related to three main issues:

(a) tracking climate change - observing and identifying climate change, analyzing it, and forecasting future changes.

(b) actions taken to reduce greenhouse gas emissions - the policies of the national government and the individual ministries responsible for acting on greenhouse gas emissions (i.e., those dealing with the energy-producing sector, which is responsible for producing most greenhouse gases), policy implementation, and practical results.

(c) monitoring greenhouse gas emissions and issuing reports. The audit was conducted from March to July 2009 in the Environmental Protection Ministry, the Meteorological Service, and the Central Bureau of Statistics. Supplementary examinations were also carried out in the Ministry of National Infrastructures (hereafter - the Infrastructure Ministry), in the Israel Electric Corporation (IEC), in the Transportation Ministry, and in the Finance Ministry.

OBSERVING AND TRACKING CLIMATE CHANGE

1. The Israel Meteorological Service, an autonomous unit in the Transportation Ministry, is responsible for conducting meteorological and climatic observations. Its major tasks are[11]: preparing weather forecasts; establishing, operating, and maintaining a national network of meteorological stations; conducting meteorological observations to ensure that the nation's standard climate data are trustworthy; establishing, operating, and maintaining a national database of basic meteorological data; conducting applied meteorological research; maintaining responsibility for international cooperation as a member of the World Meteorological Organization; supplying raw and processed meteorological data for national and international needs.

The Meteorological Service operates without a basis in primary legislation. As of July 2009, when the audit terminated, a law proposal from the year 2000, to determine the service which the Meteorological Service was supposed to provide, had not yet been acted upon.

2. To generate the data needed to forecast climate change requires, among other things, continuous and reliable measurements, over long periods of time, of meteorological parameters; continuous checking of the data received from the meteorological stations; and processing their data.

The Meteorological Service has encountered difficulty in carrying out the tasks required for long-term monitoring of climate change: it lacks professional personnel and finds it difficult to maintain its network of meteorological stations; historical data typed into the database has not been thoroughly checked; and, until now, the data gathered for monitoring purposes has only been cursorily analyzed.

In its September 2009 reply to the State Comptroller's Office, the Transportation Ministry stated that "following employee retirements and the cancellation of job slots in the Meteorological Service's station maintenance

8. CDM - the Clean Development Mechanism - is basically a financial instrument that allows international trade in greenhouse gases. It was established in 1997 as part of the Kyoto Protocol and permits developed countries to acquire "emission reduction rights" from developing countries instead of actually reducing their own emissions. It is intended to help developed countries attain their emission reduction goals while helping developing countries promote sustainable development projects.

9. In 2008 the Israel State Comptrollers Office was accepted as a member of EUROSAI.

10. The following countries participate in the joint audit: Azerbaijan, Cyprus, Denmark, Estonia, Israel, Macedonia, Poland, Russia, Switzerland, and Ukraine. Poland coordinates the audits.

11. See the website of the Environmental Protection Ministry.

services, the Service's director proposed outsourcing such services … the Budget Office in the Finance Ministry is currently examining the additional budget needed as part of the total Meteorological Service budget, in line with the Transportation Ministry's general priorities for the regular and development budgets." The Ministry added that the Meteorological Service requires the introduction of three more positions in the areas of climate forecasting, climate data processing, and data control. This requirement has been transmitted to the relevant persons in the Transportation Ministry and it will be acted upon in accordance with the Ministry's general priorities.

3. The Meteorological Service participates in international organizations in the area of climate change: the Director of the Meteorological Service is Israel's representative in the Intergovernmental Panel on Climate Change (IPCC), and an Israeli researcher was active in the preparation of the IPCC's fourth report; the Meteorological Service provides data on the operation of solar meteorological stations to the World Meteorological Organization, but is not involved in the research activities; and it provides data for the construction of an all-European climate database, which is coordinated by the Netherlands Meteorological Service, but does not participate in their processing.

The integration of the Meteorological Service in international efforts concerning climate change is rather limited and difficult to expand because it lacks suitable computer resources for running seasonal and climatic models and suffers a dearth of research activity in the areas of climate change monitoring and climate forecasting.

The Transportation Ministry stated in its reply to the State Comptroller's Office that in order to run climate forecasting models the Meteorological Service requires additional budgeting to purchase a suitable computer, and that a budget request would be submitted for the approval of the Ministry's director-general, as part of the 2010 budget.

REDUCING GREENHOUSE GAS EMISSIONS

The main greenhouse gas emitted in Israel is carbon dioxide. In 2007 some 67 million tons of carbon dioxide was released into the atmosphere, constituting some 87% of total greenhouse gas emissions. The main cause of carbon dioxide emissions is fuel combustion, especially for energy production. Measured in terms of carbon dioxide emissions[12], electricity production forms some 63% and motor vehicles produce some 22% of greenhouse gas emissions, according to the Central Bureau of Statistics. It is estimated that it came to 76.8 million tons in 2007, as compared to 62.7 million tons in 1996 - a 22% increase. On the other hand, greenhouse gas emissions per person, in terms of carbon dioxide went down from 11.03 tons per person in 1996 to 10.69 tons in 2007, a decline of 3.1%.

Although Israel is not obligated to reduce greenhouse gases by pre-determined amounts, as it does not appear in either Appendix 1 of the Climate Convention or Appendix B of the Kyoto Protocol, the Government of Israel has taken upon itself to deal with greenhouse gas emissions and has taken practical steps to that end, as follows.

1. In May 1996 the Government decided[13] to adhere to the U.N. Framework Convention on Climate Change, to ratify the Convention and to establish an inter-ministerial committee to formulate a policy on greenhouse gas emissions. In November 2000 Israel submitted to the U.N. a report on greenhouse gas emissions in its territory and on its policies and activities on the issue[14] in accordance with the principles of the Climate Change which it had adopted. In the report to the U.N. Israel announced its decision to formulate a national plan for

12. *The effect of greenhouse gases is given in terms of the effect of carbon dioxide, the main greenhouse gas, through a specially developed mathematical ratio used by the IPCC.*
13. *Cabinet Decision 815 of 5 May 1996.*
14. *Israel National Report on Climate Change: "First National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change", State of Israel, Ministry of the Environment, Jerusalem, November 2000.*

reducing greenhouse gas emissions, and to implement it. The Government decided in February 2001[15] to take steps to reduce greenhouse gas emissions, based on what the inter-ministerial committee established in 1996 will conclude. In 2000 and 2001, the Environmental Protection Ministry, which had headed the inter-ministerial committee, and which had coordinated greenhouse gas reduction activities, received studies from experts recommending means to reduce greenhouse gas emissions.

Despite the 1996 and 2001 Cabinet decisions, and the studies that had been submitted to the Environmental Protection Ministry, the ministry did not formulate definite goals for reducing greenhouse gas emissions or means for attaining those goals. The activities of the inter-ministerial committee ceased in 2004 without its having submitted to the Cabinet its conclusions on steps that needed to be taken.

2. In 2007 the Environmental Protection Ministry decided to draw up a study examining Israel's readiness to reduce greenhouse gas emissions in the period following 2012 (hereafter - the study). In order to prepare the study, an external consultant company was hired (hereafter - the external consultants) and an inter-ministerial steering committee was established. In the documentation of the tender in which the external consultants were chosen, it stated that "the services will include … construction and analysis of various scenarios for reducing greenhouse gas emissions, calculating their economic costs and benefits, and recommending the optimal policy balancing the reduction of greenhouse gas emissions with the other economic ramifications."

In January 2009 the study was submitted to the Environmental Protection Ministry and to the inter-ministerial steering committee. Among other things, it included: a forecast of greenhouse gases up to 2025; an analysis of alternatives for reducing greenhouse gas emissions, and sample-based cost-benefit calculations of various relevant measures to be taken; recommendations on policy and the continued efforts needed. In April 2009 the ministry decided to contact a research institute to prepare a follow-up study which would include an analysis of measures to reduce greenhouse gas emissions, their potential for implementation, and their economic ramifications. In August 2009 the Environmental Protection Ministry entered into an agreement with an international consulting firm that had conducted greenhouse gas reduction studies for other countries, in order to lay the basis for a national plan of action.

The State Comptroller's Office notes that as far back as 2000 the Environmental Protection Ministry had begun ordering studies of steps to be taken to reduce greenhouse gas emissions. Almost a decade later, it had still not consolidated a professional foundation for preparing a national plan of action. The situation points to the ministry's lack of effectiveness in planning and leading this process.

3. In May 2009 the Government decided to establish a ministerial committee on preparedness for climate change. In June 2009 the ministerial committee adopted the following decisions:

(a) to set up a committee of directors-general to prepare for, and adapt to, climate change and greenhouse gas reduction, headed by the director-general of the Environmental Protection Ministry, and to task it with the formulation of recommendations for a national plan of action to reduce greenhouse gas emissions. The plan would be submitted for approval to the ministerial committee within one year. The plan was to be based on international agreements and would establish: national targets for greenhouse gas reduction; formulation and implementation of reduction measures; time frames and milestones; the economic aspects and the budgets necessary for implementation; and output and result indices;

(b) a work team would be appointed to formulate plans for the following areas of greenhouse gas reduction: conservation energy and making it more efficient; construction and housing; improving efficiency in electricity production; transportation; agriculture; waste; land use; water; renewable energy. The plans of action of the teams would be submitted to the committee of directors-general within six months from the date of the decision. The work teams would also submit interim reports that would serve as a basis for formulating policy towards the conference of the countries participating in the Climate Convention, which would take place in Copenhagen in December 2009. The committee of directors-general would formulate

15. Cabinet Decision 2913 of 15 February 2001

a policy proposal for greenhouse gas reduction in the country, to serve as a basis for further discussion at the Copenhagen Convention. The policy proposal would be submitted to the Cabinet and to the ministerial committee before the Convention convened.

In order to improve air quality and reduce air pollution the Clean Air Law, 2008, was enacted as a way of protecting lives, health, quality of life, and the environment, including natural resources, ecological systems, and biological diversity. The law defines pollutants, and establishes regulations necessary for monitoring their emission. They serve as a basis for the regulation of pollutant emissions that can affect climate change and their monitoring. A system of monitoring of certain pollutants exists in Israel at the national and local levels; since 1992 air quality regulations on the permitted level of ozone emission have been enforced.

In 1996 and 2001 the Government decided to define a policy for reducing greenhouse gas emissions and to take suitable steps to enforce it. To that end an inter-ministerial committee was set up, headed by the Environmental Protection Ministry, and studies were made of how to reduce greenhouse gas emissions in various economic sectors, as a basis for a national plan of action. Likewise, a Clean Air Law was passed. However, as of July 2009 when the audit terminated, the Environmental Protection Ministry had not formulated a national plan for reducing greenhouse gas emissions nor did it finish preparing the professional infrastructure needed to do so.

THE ENERGY SECTOR

1. According to the IPCC, the energy sector includes any process in which fuel is burned in order to create energy. While this includes fuel combustion for electricity, heat, and steam for manufacturing and construction purposes, for driving motor vehicles, and for providing heat and energy for dwellings, institutions, etc., the major contributor of the energy sector as a whole to greenhouse gas emissions is fuel combustion for electricity production. Hence, this chapter focuses on greenhouse gas emission resulting from electricity production.

Israel's electricity production system has unique characteristics compared to Western countries, which burden its development and management, and among them is the lack of natural sources of fuel. This causes dependence on fuel imports from abroad; significant geo-political difficulties in using nuclear energy to produce electricity; geo-political limitations that do not permit connecting to the electricity networks of neighboring countries, thus requiring the establishment of an autarkic electricity grid; and shrunken land resources which limit the expansion of the electricity production system.

According to the data of the Ministry of Infrastructure and of the Electric Corp., greenhouse gas emissions in Israel as a result of electricity production alone amounted to 40.2 million tons of CO_2 in 2008. In 2007 this constituted, in terms of CO_2, 53% of total greenhouse gas emissions. In 2008 some 65% of electricity was produced by coal, 26% by natural gas, and the rest by diesel and fuel oil. The composition of the fuels has a decisive impact on the level of greenhouse gas emissions - in 2008 electricity production using coal caused the emission of 0.85 kilograms of CO_2, while the use of natural gas caused only 0.47 kg. of CO_2 to be emitted. Changes in the composition of fuels were also expressed as a downward trend in the reduction of specific emissions of CO_2 (specific emissions are the amount of CO_2 produced per kilowatt-hour): between 2003 and 2008 specific emissions went down from 830 grams of CO_2 per kilowatt-hour to 740 grams of CO_2 per kilowatt-hour.

The study previously mentioned forecasts that by 2025, a "business as usual" policy (i.e., a continuation of current policy), would result in a growth of CO_2 emissions from electricity production to as much as 62.3 million tons.

2. In November 2002 the Government decided[16] to encourage the construction of electric plants and power stations using renewable energy (i.e., power produced by sun, wind, water, organic waste, and effluents) by private

16. Government Decision 2664 4 November 2002.

producers as well as the Electric Corp. It set a target of 2% of total electricity to be produced by renewable energy sources by 2007, and then to rise by one percent every three years so that by 2016 it would be at least 5%.

The 2007 target was not achieved: in 2007 only 0.2% of Israel's electricity is produced by renewable energy[17]. Furthermore, according to Electric Corp. data, due to increased electricity production, carbon dioxide emissions increased from 34.6 million tons in 2000 to 40.9 million tons in 2007 - increased by 18%. At the same time, Israel's greenhouse gas emissions, in terms of CO_2, increased by only 6% (from 72.4 million tons in 2000 to 76.8 million tons in 2007). It should be noted that the use of natural gas to produce electricity increased from zero in 2000 to 20% in 2007 and 26% in 2008 - a process which moderated the growth in CO_2 emissions in the production of electricity.

3. In October 2007 the Infrastructure Ministry finished preparing a master plan for electricity production for the period 2007 to 2030. It stated that its strategic target was the "diminishment of greenhouse gas emissions per person in the long run, so that it would not rise above a level acceptable in developed countries". The plan indicated development targets for the electricity system that could contribute to the reduction of greenhouse gas emissions.

The State Comptroller's Office found that the master plan formulated by the Infrastructure Ministry did not give an appropriate answer for the attainment of its strategic target - "diminishment of greenhouse gas emissions per person in the long run, so that it would not rise above the level acceptable in developed countries". The master plan did not indicate how long that would take or define the acceptable level of greenhouse gas emissions per person. Nor did it indicate by how much the means to be utilized in developing electricity production would contribute to the potential reduction of greenhouse gas emissions. As a result, the master plan does not lay a foundation for achieving its strategic target but only makes a general statement.

In its reply to the State Comptroller's Office of August 2009, the Infrastructure Ministry said that "the master plan for electricity production is part of the master plan on energy, the draft of which is still at the discussion stage … It is the Ministry's intention to update the master plan for energy to take the latest developments into account".

The State Comptroller's Office notes that in updating the master plan for energy, the Infrastructure Ministry must work out how it will attain its strategic target for greenhouse gas emissions, it must draw up a time table, determine what actions are required, and state clear goals.

In its annual work plans for 2008 and 2009 the Infrastructure Ministry presented targets for expanding the use of renewable energy and in conserving electricity. The attainment of these goals should reduce greenhouse gas emissions from the production of electricity.

However, the work plans did not relate to the reduction of greenhouse gas emissions in energy production by spelling out concrete steps for achieving it, as well as a binding time table. Furthermore, the work plans did not mention how much these targets would reduce greenhouse gas emissions.

In its reply to the State Comptroller's Office of August 2009, the Infrastructure Ministry stated that "The Infrastructure Ministry, which is responsible for the proper functioning of energy production, cannot hold up development plans for electricity production solely to the mirror of greenhouse gas emission reduction … A strong and continuous rise in electricity demand is forecast for Israel, as opposed to other countries, due to population growth and the development requirements of its economy … The plans of the Ministry to expand the utilization of renewable energy and to expand energy storage do not allow us to reverse the trend towards an increased demand for electricity - but they can moderate the rate of increase. Accordingly, we are striving

17. State Comptroller of Israel, Annual Report No. 59b, "Energy Storing and the Use of Renewable Energy in Electricity Production".

to reduce specific emissions of greenhouse gases as expressed in the reduction of pollutant emissions per unit of energy produced".

The State Comptroller's Office believes that in order to improve and make more efficient the positive steps which the Infrastructure Ministry intends to take in the area of greenhouse gas emissions, it must include specific targets in its annual work plans and describe the means to attain them in the framework of a defined schedule.

4. It should be emphasized that in 2008 the Government began to accelerate the process of making energy more efficient and bringing renewable energy into use: in March the Government decided[18] to set a target for reducing the use of electricity in the economy by 20% of the estimated consumption of electricity in 2020 on the basis of electricity consumption in 2006, and in September the Government decided[19] to formulate steps to achieve it, including making energy more efficient in government installations; financing projects for energy efficiency in local governments; formulating standards of energy efficiency in the economy; raising public awareness of the issue; assistance in getting credit to energy suppliers; and standards for energy-aware construction.

In August 2008 the Government decided[20] on a five-year plan for 2008-2012 in which the government and private sources would cumulatively invest in research on, and technological development of, the use of renewable energy to produce electricity. In January 2009 the Government decided[21] to set a target for producing electricity from renewable energy at a rate of 10% of the country's energy needs by 2020, with an interim target of 5% by 2014. The Government also decided to build a power station based on renewable energy sources, particularly in the Negev Desert and the Arava Plains, which would produce no less than 250 megawatts every year beginning in 2010 and until 2020. In the course of 2009 the Government began implementing its decisions; among other things government ministries took steps to save energy, and calls were issued for competitive bids to set up solar power stations in the Negev Desert.

Likewise, in 2008 and 2009, Israel's electricity regulation authority (the Public Services Authority – Electricity) set rules for the operation of private electricity-producing installations based on various forms of renewable energy and set rates for their selling electricity to the national electricity grid.

The reduction of greenhouse gas emissions by various means, such as producing electricity using renewable energy, and reducing fuel combustion in transportation, has other advantages besides direct reduction of greenhouse gas emissions: for example, it leads to improvement in the quality of air, land, and water sources, thereby improving citizens' quality of life and their health and welfare. The technological developments required to implement the means for reducing greenhouse gas emissions may generate business profit centers, increase technology exports, and speed economic development. Accordingly, although in the short run the reduction of greenhouse gas emissions involves increased costs to the economy, in the medium and long run it is not just an expense but also a form of investment, with the attendant advantages. It is thus worthwhile examining budget allocations for this from a comprehensive viewpoint while internalizing the savings caused by reduction of the ecological damage caused by greenhouse gases.

MONITORING GREENHOUSE GAS EMISSIONS

1. The Central Bureau of Statistics (hereafter - the Bureau) monitors greenhouse gas emissions at the national level. Since 2005 the Bureau has regularly been calculating the principal greenhouse gas emissions (calcula-

18. Cabinet Decision 3261, 13 March 2008.

19. Cabinet Decision 4095, 18 September 2008.

20. Cabinet Decision 3954, 21 August 2008.

21. Cabinet Decision 4450, 29 January 2009.

tions were made starting in 2003)[22]: carbon dioxide (CO_2), methane (CH_4), and nitrous oxide N_2O) and four gases defined as "gases of origin for greenhouse gases" - carbon monoxide (CO), nitrogen oxide (NOX), microbial volatile organic compounds (MVOCs), and sulfur dioxide (SO_2). The data are published in the Bureau's Statistical Yearbook.

In order to calculate the emissions, the Bureau receives data on their sources, including energy-producing fuels, industrial production, cattle herds, motor vehicles, and waste deposits. Data is received from the relevant government ministries, local governments, and large industrial plants.

The authority of the Bureau to collect data is regulated by the Statistical Ordinance [New Version], 1972. However, according to the Statistical Ordinance, the Bureau may not publish any data it collects relating to non-State institutions which would enable those institutions to be identified, without their prior agreement. For this reason, in the Statistical Yearbook the Bureau aggregates data from several categories into one, classified as "other sources". For the same reason, and because the country's oil refineries have been privatized, detailed data from the fuel refining sector on greenhouse gas emissions may not be published.

In the opinion of the State Comptroller's Office publication of detailed data can contribute significantly to the development of effective policies to reduce greenhouse gas emissions and effectively monitor them. Publication can cause public pressure on the polluting bodies to take appropriate steps to reduce their greenhouse gas emissions. Accordingly, data publication should be arranged and presented at the level necessary for decision-makers and international bodies to take action.

The Bureau calculates carbon dioxide absorption in forests according to raw data received from the Jewish National Fund, the body responsible for afforestation in Israel (these data were reported to the IPCC but do not appear in the Statistical Yearbook because of lack of room in the relevant table). In 2000 absorption came to 0.4 million tons of CO_2, while in 2005 it rose to 0.5 million tons. In addition, the Bureau is developing a model for calculating three more groups of greenhouse gases whose emissions are relatively small but whose effect on warming is considerable - fluoro-carbons (PFCs), hydro-fluoro-carbons (HFCs), and sulfur hexafluorides (SF_6).

A large number of the countries obligated to reduce greenhouse gas emissions are members of the European Union (EU) and are subject to its regulations on greenhouse gases, including their monitoring. Directive 2003/87/CE of the EU relates to the monitoring principles demanded of European member states, among them: monitoring is to be accomplished by measurement or calculation of the emissions; calculations must be made according to the mathematical product of activity level, the coefficient of the emission, and the coefficient of its carbon dioxide conversion; activity data (amount of fuel, level of production, etc.) must be based on supply data or on measurement; every activity, installation, and greenhouse gas (as defined in the Appendix to the Directive) must be calculated; identifying data must be recorded, including the name of the installation, its address, and the activity conducted there (in accord with the Appendix to the Directive, on the types and levels of activity requiring monitoring), and the identity of the owner (an individual or a firm) of the installation.

Israel is not obligated by the directives of the EU. Nevertheless, the monitoring activity carried out by Israel through the Central Bureau of Statistics accords with some of the demands of the EU Directive: emissions are calculated; the calculation meets the criteria defined in the Directive; and the calculation is made for the relevant sectors, types of fuel used, and main greenhouse gases. It should be noted that in 2008 the Bureau voluntarily submitted to the Secretariat of the Climate Convention a report on greenhouse gas emissions in

22. The foundations for the calculation of the main greenhouse gas emissions were laid by the Environmental Protection Ministry: in the framework of studies commissioned from experts, calculations were made as to emissions in 1996 and 2000. The methodology for the calculations was worked out according to the professional guidelines of the IPCC. The Bureau has updated the methodology and continues to use it.

2000 and 2003 – 2005. The calculations were done in accordance with the guidelines of the IPCC and placed on the website of the Climate Convention.

Nevertheless, monitoring of greenhouse gas emissions is not regulated by law in Israel, or by regulations or ministry directives. The decision to calculate greenhouse gas emissions was an internal decision of the Central Bureau of Statistics and relies on its mandate to collect data on the quality of the environment by virtue of the Statistical Ordinance. As a supplementary step to this important initiative of the Bureau, the State Comptroller's Office believes that the monitoring of greenhouse gas emissions should be regulated officially - the body responsible for it, the methods to be used, the data necessary, and the level of detail required, in accordance with the types of greenhouse gases and the element emitting them. This arrangement will ensure that the monitoring system will suit the operation of the national plan for reducing greenhouse gas emissions.

2. In December 2007, the head of the environmental desk in the Bureau reported on his participation in the United Nations Climate Change Conference on Global Warning that took place in Bali, Indonesia. He noted that from the standpoint of the Bureau "in addition to the data collected today, new variables and indicators can be developed which would better serve decision-makers as a basis for determining Israel's strategy for dealing with climate change". He noted the needs: improvement of data - broadening coverage also to gases emitted from cooling systems and better data collecting on methane emanating from waste deposits; expanding data collecting on existing projects to reduce emissions (Clean Development Mechanism (CDM) projects) as well as research and development in this area; expansion of statistical data on renewable energy and increasing energy efficiency in the electricity system, in industry, in transportation, in construction, and in private homes.

The examination indicates that some of the problems listed above by the head of the environmental desk in the Bureau have not yet been solved. The Bureau still has almost no statistics on renewable energy and energy saving. The analysis of such data would enable the raising of public awareness to the issue and the formulation of policy towards the issue. Thus, the Bureau has almost no statistics on the reduction of greenhouse gas emissions as a result of CDM projects and the contribution of new technologies (for example, industrial automation) for greenhouse gas reduction that have been developed and may influence the greenhouse gas coefficients the Bureau uses in its calculations.

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According to organizations who deal with the quality of the environment, one must take into account that the 21st century has been labeled the "green century". Any country that can advance its readiness to reduce greenhouse gas emissions will enjoy an accumulation of knowledge, technological breakthroughs, increased patent registrations, and the expansion of its exports. Furthermore, a country which does not advance its preparedness to reduce greenhouse gas emissions is liable to suffer damage to its international status to the point of being subject to sanctions against it.

Accordingly, The State Comptroller's Office believes that the means for reducing greenhouse gas emissions should be examined, not only from the standpoint of providing an answer to formal obligations on greenhouse gas reduction, if in future they should be imposed on Israel, or from the standpoint of the direct budgetary costs involved, but from the long-term social and economic benefits to be gained. Furthermore, the observation and monitoring systems should be developed and expanded as should keeping track of climate change and monitoring emissions.

The former Yugoslav Republic of Macedonia

MAIN INFORMATION ON NATIONAL AUDIT PERFORMED BY THE STATE AUDIT OFFICE OF THE REPUBLIC OF MACEDONIA

Title: Implementation of the international and national commitments concerning the activities aimed on mitigation of the climate change in the Republic of Macedonia;

Audited bodies: Ministry of Environment and Physical Planning of the Republic of Macedonia,
Information providing bodies:

- Ministry of Economy of RM;
- Ministry of Transport and Communications of RM;
- Ministry of Agriculture. Forestry and Water Economy of RM;
- Ministry of Health of RM;
- Ministry of Finance of RM;
- Ministry of Foreign Affairs of RM;
- Macedonian Academy of Science and Art;
- State Statistical Office;
- Energy Regulatory Commission of the Republic of Macedonia;
- Energy Agency of the Republic of Macedonia;
- Secretariat for European Affairs in the Government of the Republic of Macedonia;
- UNDP;
- Regional Environmental Center;
- Joint Office with the Italian Ministry for Environment, Land and Sea, Projects 2007 – 2008
- Special Representative to the UN Secretary General for climate change Mr. Srgjan Kerim;
- Hydro Meteorological Directorate of the Republic of Macedonia;

Time frame: audited period 2006 – 2008; duration of the audit: February/September, 2009;

Aim and Scope: The aim of the national audit is to give an assessment on the coordination, governance, international commitments and commitments derived from national regulations; commitments' planning, implementation and actual results; awareness for sectors' risks in the field of GHG emission; creating proper policy tools in the competent institutions; checking whether undertaken commitments would meet the targets; whether the country has established framework for efficient and effective management of resources planned for projects for reduction of GHG emission, whether these resources contribute to fulfillment of targets set for GHG emission reduction; and other open issues that we encountered during the audit.

The scope of the national audit is in accordance with the Framework Audit Programme for GHG emission reduction and Clean Development Mechanism implementation, which is the only flexible mechanism that Republic of Macedonia has access to in accordance with the Kyoto Protocol. During our national audit were incorporated several ministries, agencies, committees, the function of Special representative of the UN Secretary General for climate change, and other. Those institutions are designated bodies on: creating policy tools, activities, gathering documentation, information and data, implementation on the activities and measures, observation, measuring and reporting, researching and analyzing the results on scientific basis, building projections, gathering statistical data, etc.

THE MAIN NATIONAL AUDIT FINDINGS:

- During the period 2006 – 2008 in the Republic of Macedonia there is a significant advancement regarding regulations for establishing policies, measures, competences, tools, risk detection and activities for risk reduction in the field of climate change, and proper reduction of GHG emission in those sectors that were identified as the biggest contributors to the total GHG emission, as well as reduction of GHG emission on a national level. There are published laws and by-laws, strategies, action plans, scenarios, environmental indicators, plans for measures for reduction of the effects of climate change with considerable scope and information. These documents will contribute to the processes for implementation of policies and measures, competences and responsibilities of all stakeholders, as well as to the effects from conducted measures; they comprise a solid foundation that can be further upgraded in order to develop a database and to ensure continuity of data and projections on sector and national level. Certain provisions of the current legal regulations – the Law on ambient air quality and the Law on environment that refer to climate change – measuring GHG emission and meeting requirements for obtaining environmental licenses for the period 2006 – 2008 were not operational due to lack of bylaws for these regulations. In 2009 this situation begins to change as MoEPP of RM undertakes activities regarding the bylaws.

- The application, measurement and monitoring of the degree of application of provisions and commitments derived from the Kyoto Protocol for the Republic of Macedonia are limited and result from Macedonia's position as non - annex I party with accepted CDM. The implementation of CDM for reduction of GHG emission in Macedonia is still in the inception phase. Namely, in the last 2 years 2007 - 2008, the number of submitted, approved and ongoing projects is 7. However, it is worth pointing out the projects that are measures designed for GHG emission reduction in the Second National Report on Climate Change, allocated in different sectors for improvement of the energy balance, transportation, agriculture, forestry, waste, civil engineering, global warming and renewable energy sources. Nevertheless, their realization will depend to a great extent on obtaining projected financial resources, as well as on oversight of their realization. The promotion of CDM projects and information for interested parties that would like to invest in these projects is currently available only on MoEPP web page.

- MoEPP of RM as the competent institution for creating environmental policies, as designated national authority (DNA) and as point of contact for UNFCCC carries out its activities on climate change through its role as state advisor on climate change. Although MoEPP of RM is coordinator of the climate change policy, the implementation of this policy depends on number of entities in the public and the private sector on national and local level, and the scope of this function is too extensive to be carried out only by one person. The deficiency of staff and segregation of duties points out the risk of untimely, incomplete and irrelevant handling of Ministry's competences in this field, especially for following up the status of measures i.e. the degree of realization of measures and activities for climate change derived from the Second National Report on Climate Change (NRCC) of the Republic of Macedonia.

- We found out that the implementation and reporting for the implementation of the National Plan for Climate Change (NPCC) by the institutions and for the Ministry are not being done in line with the requirements provided in the law, i.e. it is done verbally with partial information on the realization of certain activities. MoEPP of RM believes that the legal form and frequency of reporting should be simpler in favor of the efficiency of the relations. MoEPP reporting for the implementation of NPCC to the Government of RM is done through written information on certain conducted activities, but not on the whole which would enable tracking of the realization. This approach does not provide real image of the effects of created and applied policies, measures and activities or the need for their modification.

- MoEPP of RM has reviewed the First NRCC that refers to the initial period of Macedonia's commitments for the Kyoto Protocol. MoEPP has reviewed the inventory of GHG emission, but it did not make an analysis for the degree of realization of recommendations i.e. whether the recommendations given on the policies

and measures have been implemented. On one hand, this situation has effects and results in the design of improved scenarios for GHG emission in the Second NRCC, while on the other hand there is a lack of guidance for improvement of policies and measures subsequent to the given recommendations. MoEPP of RM as a competent institution for creating policies on climate change does not have relevant information on the degree of implementation of given recommendations on the inventory that would be a reference point for maintaining or modifying the policies and measures.

- Some competent institutions in RM do not use and fulfill entirely their commitments and responsibilities derived from the national regulations, from their strategic documents and certain responsibilities regarding environment - climate change and especially energy efficiency and GHG emission. In practice, we identified obstacles in the operation of the Energy Agency that was described as key mediator for giving recommendation and financial support for projects in the field of energy efficiency and renewable energy resources. Although the Agency was formed in 2005, it still suffers from operational, HR, financial and organizational issues that have crucial effect on its activities, as well as on the activities of other institutions involved in environment protection as to energy, GHG emission reduction and climate change mitigation. Another institution that has competences and can have an impact on the reduction of GHG emission and obtaining funds for improving the conditions in the environment is the Energy Regulatory Commission. The Commission has mandate for environment protection defined as monitoring the implementation of commitments in that area by the licensed entities[23]. In practice, ever since its formation in 2003 the Commission has not used its authority regarding environment protection, giving the explanation that environment protection is primary activity of MoEPP of RM. The Commission has not adopted direct measures for activities regarding GHG emission reduction.

- The positive legal regulations on climate change in Macedonia, as well as the National Environmental Action Plan (NEAP) II provide for different policy tools that refer to GHG emission reduction. However, these tools are not from fiscal/financial nature like the ones used in the region, for example CO_2 tax, fiscal stimulations and voluntary agreements. There are some stimulating mechanisms – subventions that are being used, but only in the energy sector.

- As for the activities carried out by competent institutions as measures for climate change mitigation, we point out the ones for afforestation of large areas, the construction of first gas plant for combined production of electrical and thermal energy, the researches for identifying renewable and alternative energy sources, the subventions obtained for this matter, the planned VAT reduction for thermal solar systems, activities for raising public awareness on the effects of climate change and the urgency for undertaking concrete measures.

- The introduction and implementation of the document Cadastre of air polluters in line with the positive legal regulations for environment in Macedonia and its regular update shows inconsistencies for the period 2005 – 2008. Until 2005 the Ministry was administering the Cadastre of polluters, but in 2005 there were no funds for managing the cadastre and it ceased its further implementation. In 2008 the situation changed and a new Cadastre of air polluters was launched.

- We also point out the insufficient mutual communication or a lack of communication between competent ministries and institutions and the function Special Representative to the UN Secretary General for climate change. This condition has a negative effect on the promotion of all previous efforts and achievements of RM in the field of climate change and beyond.

- The budgets of MoEPP of RM for the period 2006 - 2008 did not allocate funds for activities in the field of climate change mitigation. The situation changed in 2009 with the introduction of the document National

23. Explanation: "licensed entities"refers to entities that have obtained licenses from the Energy Regulatory Commission for conducting certain activities in the field of energy

strategy for investments in environment 2009 – 2013, which initiated financial participation of the country in the realization of project regarding climate change.

CONCLUSIONS

In the period 2006 - 2008, Republic of Macedonia has adopted laws and bylaws, national strategies and plans, as well as measures and projections which cover and regulate the activities for GHG emission reduction, i.e. have an effect on the activities for climate change mitigation. However, we cannot express an opinion on how successful was the implementation of the measures and policy tools regarding GHG emission reduction i.e. climate change mitigation, due to several reasons/factors:

- the implementation of CDM projects is in its early phase,
- the number of approved projects for implementation is small,
- the procedures for approving projects seems long,
- there are projects on GHG emission reduction in all sectors that vary in scope, sources of financing and time of realization, which are not subject of this audit,
- the exchange of information between MoEPP of RM and the other ministries and institutions that are competent for implementing measures and activities for GHG emission reduction is not satisfactory i.e. MoEPP does not receive feedback information on the degree, scope and successfulness of the implementation of the measures and recommendations for GHG emission reduction in line with Second NRCC, and
- MoEPP of RM has limited HR capacity in the area of climate change.

RECOMMENDATIONS

Taking into consideration the experience of all relevant institutions that in the past period took part in designing the laws and bylaws, national reports, studies, assessments, projections, in locating sectors' risks and building measures for surpassing these risks, we encourage them to continue further with these activities on a higher level in order to make possible the continuity and the upgrade of data and information; this would enable projection of quality, timely, applicable, feasible and efficient measures for climate change mitigation. It is clear that this recommendation can be implemented only if the financial and HR capacity building requirements are met, and if all institutions included communicate and cooperate regarding their competences and responsibilities in the process for climate change mitigation in the Republic of Macedonia.

MoEPP of RM as the competent institution for creating environmental policies and the its Minister should encourage all relevant institutions/stakeholders in the field of climate change which have competences and responsibilities to take care of the environment, to inform the Ministry how and to what degree they contribute to the fulfillment of the competences and responsibilities regarding climate change. Thus, the Ministry will have information for creating or complying with the course of the policies for activities that should be adopted or are already adopted and implemented. This recommendation and its application will improve the degree of inclusion of all relevant stakeholders and their contribution to the fulfillment of their competences and responsibilities regarding environment and climate change. This refers to all relevant institutions in the field

of climate change – Ministry of Economy, Ministry of Transport and Communications, Ministry of Agriculture, Forestry and Water Economy and for both previously mentioned institutions – the Energy Agency and the Energy Regulatory Commission. It is desirable MoEPP of RM to strengthen the element of its presence and the need for following the activities of all stakeholders in the field of climate change.

We encourage the activities undertaken by all relevant stakeholders, which increase the level of public awareness for climate change and contribute to the reduction of the effects of GHG emission by organizing mass public actions. However, we must point out the need for increased level of financial control and accountability and their effects.

MoEPP of RM should take on measures for promoting and increasing the potential of the Republic of Macedonia as a beneficiary country of CDM projects in order to intensify the interest of donor countries for CDM projects, as well as to multiply the financial investments in these projects. This recommendation will have positive effects from several aspects – environmental protection, reduction of GHG emission, as well as from economic and social aspect.

Republic of Poland

SUPREME AUDIT OFFICE OF THE REPUBLIC OF POLAND SUMMARY REPORT ON THE FINDINGS OF THE AUDIT ON THE IMPLEMENTATION OF SELECTED TASKS UNDER THE PROVISIONS OF THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

1. INTRODUCTION

Within the framework of the planned co-ordinated, parallel EUROSAI Audit on Climate Change, the Supreme Audit Office carried out an audit on the "Implementation of selected tasks under the provisions of the United Nations Framework Convention on Climate Change".

The aim of the audit was to assess the status of the implementation in Poland of selected provisions of the United Nations Framework Convention on Climate Change, done in New York on 9 May 1992[24] (hereinafter referred to as the "Climate Convention"), the Kyoto Protocol to the United Nations Framework Convention on Climate Change, done in Kyoto on 11 December 1997[25] (hereinafter referred to as the "Kyoto Protocol") and Directive 2003/87/EC of the European Parliament and Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC[26] (hereinafter referred to as the "ETS Directive").

The major issues covered by the audit included:

- the performance of research and observations on climate change,
- actions taken to mitigate ongoing climate change through the limitation of greenhouse gas emission levels and the enhancement of the capacity of sinks of these gases,

24. Official Journal of the Laws of 1996, No 53, Item 238.

25. Official Journal of the Laws of 2005, No 203, Item 1684.

26. OJ L 275 of 25.10.2003, p.32.

- the achieved reduction of the greenhouse gas emissions,
- reporting on the activities carried out and the effects achieved to the Climate Convention Secretariat and the European Commission.

The audit was carried out in the period from 2 March 2009 to 22 July 2009 at 20 bodies: the Ministry of the Environment, the Ministry of Economy, the Institute of Environmental Protection, the Energy Regulatory Agency and 16 industrial plants which emitted the largest carbon dioxide levels in selected regions.

In addition, pursuant to Article 29 (2) (f) of the Act on the Supreme Audit Office, this Office acquired information from the National and Regional Funds for Environmental Protection and Water Management and the EcoFund Foundation on the co-financing of the activities to prevent climate change in the audited period and from the Institute of Meteorology and Water Management on the measurements of the climate variables used for preparing climate change assessments.

2. LEGAL AND ORGANISATIONAL ACTIONS

In 2006-2008, as the leading authority in the field of climate protection, the Minister of the Environment continued to implement the provisions of the Climate Convention, the Kyoto Protocol ad the ETS Directive. The Minister of the Environment carried out the tasks ensuing from these acts in cooperation with the Minister of Economy, responsible for the sector of energy and industry, the Minister of Infrastructure, responsible for the sector of transport and construction, the Minister of Agriculture and Rural Development and the Minister of Foreign ffairs, in the scope where these Ministries performed the tasks under the national strategies and policies related to climate change. The following scientific research institutes subordinated to the Minister of the Environment were also involved in the implementation of these tasks:

- the Institute of Environmental Protection – the structure of which included the Secretariat carrying out the administrative and technical tasks under the Climate Convention and the Kyoto Protocol, the National Administrator of the Emission Allowance Trading Scheme (performing the tasks of the National Coordinator for the Community GHG Allowance Emission Trading Scheme[27] - KASHUE) and the National Emissions Centre (KCIE);

- the Institute of Meteorology and Water Management (IMGW) – in the scope of the performance of systematic climate change observations. The structure of IMGW included the National Focal Point for Intergovernmental Panel on Climate Change and the National Focal Point for the Global Climate Observing System (GCOS);

- the Forest Research Institute (IBL) – in the scope of land use, land use change and forestry in relation to climate change.

Moreover, activities to mitigate climate change were carried out by the following bodies supervised by the Minister of the Environment: the State Forest Holding "State Forests", responsible for forest management, including the protection and the correct composition of tree-stands; and the Inspectorate for Environmental Protection, in the scope of climate change observations covered by the State Environmental Monitoring Programme.

The provisions of the Climate Convention and the Kyoto Protocol and the requirements of the ETS Directive were transposed, specified and complemented by the national policies, strategies and provisions of legislation in effect in the audited period, including inter alia:

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27. The emission allowance is the right to emit into the air in a specific period an "equivalent", i.e. one megagram (1 Mg) of carbon dioxide (CO_2) or an amount of any other greenhouse gas which is equivalent to one megagram (1 Mg) of carbon dioxide as calculated using global-warming potential coefficients (Article 3 (1) of the Act on Emission Allowance Trading), in the case of greenhouse gases, or 1 Mg of other substances which may be sold, transferred or cancelled pursuant to the Act on the Emission Allowance Trading Scheme.

- the State Environmental Policy for 2003 – 2006 considering perspectives for 2007 – 2010[28];
- Poland's Climate Policy – Strategies for the Reduction of Greenhouse Gas Emissions in Poland until 2020[29];
- Energy Policy of Poland until 2025[30];
- the National Programme for the Augmentation of Forest Cover;
- the Act of 22 December 2004 on the Emission Allowance Trading of Greenhouse Gases and Other Substances[31];
- the Act of 27 April 2001[32] – Environmental Protection Law,
- the Act of 10 April 1997[33] – Energy Law.

In the audited period, the Ministry of the Environment and the Ministry of Economy drew up 7 draft Acts and 8 draft Regulations concerning the system to manage greenhouse gas emissions, energy efficiency, the composition and quality of fuels and energy generation from renewable sources. Out of these legal acts, 4 Acts were adopted and all the Regulations were issued. The other 3 Acts were being prepared for their submission to the Council of Ministers. In addition, the audit found that 3 Regulations had been issued with a delay and that 2 Regulations had not been prepared. This caused, inter alia, difficulties in the fulfilment of the reporting obligations by the operators of the installations covered by the Community greenhouse gas emission allowance trading scheme, delays in the provision of the National Administration with information for the purposes for the National Registry of Emission Allowances and the charges for the entry into the Registry, and the obstacles impeding the introduction of biocomponents in liquid fuels.

3. PERFORMANCE OF CLIMATE CHANGE OBSERVATIONS

In 2005 – 2008, the observations on climate variables were carried out primarily by the Institute of Meteorology and Water Management, which performed them within the framework of the State Hydrological and Meteorological Service (PSHM), and by the Inspectorate for Environmental Protection (directly or on its commission) in the framework of the tasks under the State Environmental Monitoring System (PMŚ).

The climate change research carried out by IMGW included such indicators as: air temperature, air pressure, humidity, wind speed and direction, precipitation, state of the ground, snow cover depth, fresh snow cover depth, snow type and snow cover shape, water content in snow cover, horizontal visibility, height of cloud base, cloud amount and cloud shape and the occurrence of atmospheric events (hydrometeors, lithometeors, photometeors and electrometeors). In addition, certain stations carried out measurements and observations on: sunshine duration, radiation balance components, vertical atmospheric sounding to a height exceeding a distance of 30 km from the Earth surface (temperature, humidity and wind speed and direction), evaporation from the surface of water and plants, and the cooling of the human body. The IMGW systems operated in a continuous manner. The measurements and observations on the particular parameters were carried out at the frequencies set out by the regulations of the World Meteorological Organization (WMO), the technical capacity and the need to ensure the hydrological and meteorological protection at national level. IMGW conducted observations at 2,320 research stations.

Selected important climate variables were also monitored by the Regional Inspectorates for Environmental Protection and, on commission from the Chief Inspector for Environmental Protection, inter alia, by: the Institute of Geophysics of the Polish Academy of Sciences, the Institute of Oceanology of the Polish Academy of Sciences, the Institute of Environmental Protection, 10 Universities and 2 National Parks.

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28. Adopted by the Resolution of the Parliament of the Republic of Poland of 8 May 2003 on the adoption of the National Environmental Policy for 2003-2006 with an Outlook for 2007-2010" (M.P. No 33, Item 433).

29. Adopted by the Council of Ministers on 4 November 2003.

30. The Communication of the Minister of Economy and Labour of 1 July 2005 on the National Energy Policy until 2025 – M.P. No 42, Item 562.

31. Official Journal of the Laws, No 281, Item 2784, as amended.

32. Official Journal of the Laws of 2008, No 25, Item 150, as amended.

33. Official Journal of the Laws of 2006, No 89, Item 625, as amended.

In the case of the measurements performed or commissioned by the Inspection for Environmental Protection, the list of the parameters tested in the scope of significant oceanic climate variables (research on the coastal zone, bays and lagoons of the Baltic Sea) included the meteorological observations and measurements of: sea water temperature, salinity and sea currents; the chemical testing of: oxygen concentrations, contents of nutrients and heavy metals; biological parameters and radionuclide contents. In the scope of atmospheric climate variables, the research covered e.g. wind direction and speed, humidity, air temperature, ground temperature on the surface and at three depths, total radiation and sunshine duration. The research frequency was 24 times a day. Continuous carbon dioxide measurements were also carried out at one station.

The audit found that neither the Institute of Meteorology and Water Management, nor the Institute of Environmental Protection carried observations on climate change effects or made projections of such effects. The research work on the impacts of climate change and the adaptation of water management to such change was done by different institutes and universities within the limits of their financial resources and individual research projects. For this reason, the Polish Supreme Audit Office assessed that the supervision exercised by the Minister of the Environment over the system of climate change observations and forecasts was insufficient and that the coordination of the activities of the many bodies operating in the system was also insufficient.

4. ACTIONS TAKEN TO MITIGATE CLIMATE CHANGE

In the audited period, the Minister of the Environment carried out actions to integrate climate policy into the sectoral government policies and climate protection into the policies in the economic sectors, among others, through the cooperation with the Minister of Economy, the Minister of Infrastructure and the Minister of Agriculture and Rural Development, the provision of opinions on sectoral policies and strategies, and the acquisition of information on the tasks undertaken in other Ministries to mitigate climate changes.

In the sector of the environment, as part of the actions to mitigate the effects of climate change, inter alia, activities were carried out to protect and enhance the capacity of greenhouse gas sinks and reservoirs and to promote sustainable forest management, afforestation and reforestation projects. In the framework of the National Programme for the Augmentation the Forest Cover, in 2006 – 2008 9,988 ha were afforested in Poland and within the framework of the Rural Development Programme about 24,000 ha were afforested. Moreover, every year in an area of about 49,000 of forests the species composition of trees was enriched and in an area of almost 31,000 ha the underbrush and the second storey were introduced. Tree-stands with an inappropriate species composition were reconstructed and the use of chemical agents was limited. Due to such actions, in 2007 the CO_2 absorption in the sector of forestry in Poland grew from 32,926.5 Mg CO_{2e} in 1988 (the base year) to 40,497.1 Mg CO_{2e} in 2007.

12 Joint Implementation (JI) projects were implemented, of which 6 were approved in 2006 – 2008. It is estimated that as a result of the implementation of these projects the reduction of greenhouse gas emissions will amount to 9,043,614 Mg CO_2.

The Community greenhouse gas emission allowance scheme was implemented. In 2008, the scheme covered 547 industrial plants which operated 835 installations. The draft NAP for 2008 – 2012, the so-called NAP 2, was prepared by the National Administrator of the Emission Allowance Trading Scheme on the basis of information contained in questionnaires submitted by installation operators and studies prepared by economic self-governments and associations of individual sectors. The emission allowances awarded to Poland by the EC were allocated to the sectors of: power plants, heat and power plants, heating plants, the coking industry and the iron and steel industry as well as the cement, lime, paper and sugar industries; and subsequently the allowances were distributed between installations within the particular sectors.

The National Emission Allowance Registry was set up in KASHUE, using an computer-based system with SERINGAS software accredited by the EC. The accounts for installations were opened at the National Registry after the NAP had been adopted by the Council of Ministers and approved by the European Commission. The

accounts in the National Registry for the installations listed in the NAP were set in operation in response to the request submitted by the installation operator (the system participant), along with the other necessary documentation. As the account became operational, KASHUE issued the allowances to the installation account.

In the audited period, the number of carbon dioxide emission allowances allocated to installations by KASHUE was 653,302,526, whereas the real verified carbon dioxide level emitted by these installations amounted to 622,459,590 Mg CO2. In addition, it was found that the rate of the use of the emission allowances allocated in 2008 was 116.1%. In 7 industrial plants out of the 16 audited ones, the real greenhouse emissions in 2008 exceeded the value of the allowances allocated by 8.2%, whereas in the other 9 plants the emissions were lower than those allocated in the allowances, representing between 98.08% and 76.65% of them. The shortage of allowances was covered by the unused number of allowances from the previous year, allowance purchases, the use of a surplus of allowances from other installations in the case of a group of installations and, in one case, it was planned that the shortage would be covered from the allocation for the next year.

Actions to mitigate climate change were also taken in the energy sector, i.e. a sector with the largest contribution to the total industrial greenhouse gas emissions. These actions included e.g.:

- the drafting of the National Action Programme for Energy Efficiency, which set out, among others, the measures to improve the energy efficiency in the sector of industry[34];
- the adoption of the Programme for Electricity Generation[35], aimed at achieving by 2010 an increase of the share of the energy produced by renewable energy sources, hereinafter referred to as RES, to 7.5% and the share of the energy produced in cogeneration to 22-23%;
- the imposition of the obligation to purchase electricity produced by RES on undertakings operating in the scope of electricity production and trading – the share of used energy coming from renewable sources in the total energy consumption in the country grew from 2.8% in 2006 to 3.4% in 2007; the number of certificates of origin of energy, confirming that the energy had been produced by renewable sources, issued to energy producers by the President of the Energy Regulatory Office, increased from 4,200 in 2006 to 6,900 in 2008;
- the introduction of legal and fiscal instruments to encourage the use of environmentally friendly fuels and energies;
- the performance of the analysis of the possible options in the scope of energy efficiency, aimed at a successive reduction of energy consumption with economic growth, where industry was reviewed to assess its energy intensity;

Moreover, in order to improve the quality of products from liquid and gaseous fuels, the Energy Regulatory Office withdrew concessions for trading in these fuels or imposed penalties in the cases where fuels and biofuels with properties inconsistent with the national regulations had been placed on the market.

The implementation of the Act on 25 August 2006 on Biocomponents and Liquid Biofuels was monitored in respect of its requirements for economic entities to achieve in a given year the National Indicative Target, i.e. the minimum share of biocomponents and other renewable fuels in the total consumption of fuels and liquid biofuels in a calendar year in transport.

Actions were also taken to limit losses in energy transmission and distribution and to promote the replacement of measuring and billing systems at electricity users by the so-called smart systems, allowing the users to effectively manage their energy consumption and making it easy to change the energy supplier.

5. MONITORING AND SUPERVISION

The Minister of the Environment monitored the implementation of the National Environmental Policy for 2003 – 2006 with an Outlook for 2007-2010 and Poland's Climate Policy – Strategies for the Reduction of

34. Excluding the installations covered by the Community emission allowance trading scheme.

35. Adopted by the Council of Ministers on 27 March 2006.

Greenhouse Gas Emissions in Poland until 2020. Government reports on the implementation of the Climate Policy were drawn up and submitted to the European Commission and the Secretariat of the Climate Convention (the most recent report was the 4th National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change, prepared and submitted to the Secretariat of the Climate Convention in 2006) and the Report on the Implementation of the State Environmental Policy in 2003 – 2006 was drawn up in 2008.

The Minister of the Environment acquired information on the implementation of the tasks to mitigate climate change from other Ministries and from scientific research institutes. Such information provided the basis for the analysis of the tasks related to climate protection under international law, national legislation and sectoral strategies and policies.

The Minister of the Environment exercised his supervision over KASHUE by verifying the annual reports of the Institute of Environmental Protection on the activities of KASHUE and acquiring the opinion of an independent auditor and a report complementing the opinion on the correctness and reliability of the financial accounting by KASHUE. The Minister also approved the preliminary budgets of annual expenditures prepared by KASHUE and received monthly expenditure accounting reports for approval.

Within the framework of the supervision over the emission allowance trading scheme, the Minister of the Environment acquired information form KASHUE concerning, inter alia, the installations which had an account at the National Registry and for which KASHUE had issued a positive opinion regarding the applications for the allocation of allowances from the national reserve for 2005 – 2007 or the plants which had failed to surrender for cancellation an appropriate number of allowances to cover the actual emissions.

The Minister also exercised his supervision over the Institute of Meteorology and Water Management (IMGW), subordinated to him, in the scope of its performance of observations on climate variables. Every year IMGW prepared detailed reports, which it incorporated into a summary report on its activities submitted to the Department of the Ministry of the Environment supervising the research and development units.

The Minister was responsible for the submission of the reports required by the provisions of the Climate Convention, the Kyoto Protocol and the European Union legislation concerning climate protection. The reports were prepared at the Institute of Environmental Protection, verified by the Minister of the Environment and submitted to the Secretariat of the Climate Convention and the European Commission.

The reports on the national greenhouse gas emission levels presented the results of the inventory of the emissions of: carbon dioxide, methane, nitrous oxide and industrial gases (HFCs, PFCs and SF_6). The emission sources were divided into groups according to the IPCC classification. The calculations of the national emissions, the CRF (Common Reporting Format) tables for the particular categories of emission sources and summary tables were prepared in accordance with the IPCC methodology using the CRF Reporter software. The reports were based on the reports from industrial plants, public statistical data and information received from the Ministers responsible for the individual sectors of the economy.

It was found that in 2006, out of the operators of 857 installations, the operators of 808 installations (94.3%) had sent their verified reports accounting for the emission allowances in 2005 to KASHUE with a delay. The operators of 2.8% of installations failed to submit their reports for 2006 on time and the reports for 2007 concerning 1.3% of installations were also delayed. As the audit found, the reason for the delays in the submission of the reports for 2005 by the audited plants was the delayed issue of the Regulation of the Minister of the Environment on the requirements for the auditors authorised to verify annual reports on emissions and the Regulation of the Minister of the Environment on the grounds for calculating the costs of verification of annual reports.

The audit to determine the timeliness of the submission of 12 reports by the Minister of the Environment to the European Commission and the Secretariat of the Climate Convention showed that 8 of them had been sent with a delay. One reason for the delay was e.g. the system for the approval of reports. Another report on the national policies and measures to reduce emissions and greenhouse gas emission forecasts, the submission date of which expired on 15 March 2009, had not been prepared by the date of the audit. This report had not been prepared, since the Council of Ministers had failed to adopt an amended National Energy Policy and, in consequence, had failed to elaborate data for greenhouse gas emission projections.

As a result of the reporting delays, Poland received formal notices concerning its failure to meet its commitments and requests to eliminate its infringements of the Treaty obligations from the European Commission.

The Institute of Environmental Protection served as the National Reference Centre for air quality and emissions of air pollutants within the structure of the European Environment Information and Observation Network of the European Environment Agency. The Institute cooperated with national and foreign institutions within the framework of the implementation of the greenhouse gas emission allowance trading scheme, participating in the expert groups of the EU Council. The Ministry of Economy was also involved in international cooperation, working with the institutions of the European Union, inter alia, on the Climate and Energy Package, and with the International Energy Agency, in the scope of renewable energy sources, energy efficiency, energy research and technologies and fossil fuels. From April 2008, IMGW participated, together with 29 European national meteorological services, in the EMMA project (European Multi-service Meteorological Awareness System), aimed at publishing uniform warnings at European level of the occurrence of dangerous weather events.

6. FINANCING OF TASKS CARRIED OUT TO MITIGATE CLIMATE CHANGE

As the charges for the allocation of the emission allowances for the 2nd commitment period (2008-2012), the installation operators paid 24,072,100 PLN to the account of the National Fund for Environmental Protection and Water Management. The audit at the Institute of Environmental Protection demonstrated that a total of 43,200 PLN had been paid by the operators of 96 installations (out of 835 covered by the scheme in 2008), as a charge for the entry into the National Emission Allowance Registry in the 2nd commitment period (2008 – 2012), set out in Article 12 (1) of the Act on the Emission Allowance Trading Scheme at a rate of 450 PLN, into the account of the National Fund by 12 May 2009.

In 2006 – 2007, a total of 7,185.9 million PLN was expended on the air and climate protection, including: 3,511.9 million PLN in 2006 and 3,674.0 million PLN in 2007[36].

In turn, the National Fund and 16 Regional Funds for Environmental Protection and Water Management spent a total of 2,590,745,200 PLN on measures related to climate change, i.e. investment projects, mostly in the energy and waste sectors, observations, climate change assessments and forecasts, the operation of the allowance trading scheme, the preparation of reports and expert studies, scientific research work, measures taken in the sectors of the national economy and other measures. 96.5% of this amount, i.e. 2,499,968,400 PLN, was allocated for investment projects.

Moreover, in the audited period, the ECOFUND expended 79,970 million PLN to co-finance investment projects to reduce greenhouse gas emissions. These resources qualified as foreign assistance funds paid out to investors in PLN.

Following the audit, the Supreme Audit Office sent post-audit statements to the heads of the bodies audited, where it requested that measures should be taken to eliminate the irregularities found in these bodies.
In the National Report on the Audit Findings, the Supreme Audit Office included systemic recommendations addressed to the Minister of the Environment, the Minister of Economy and the chief executives of the in-

36. Environmental Protection 2007" and "Environmental Protection 2008", Main Statistical Office.

dustrial plants participating in the national emission allowance trading scheme. The recommendations concerned e.g. the issue of the lacking Regulations, the verification of the organisation of the system for climate change observations in terms of the completeness of the research carried out and the mutual provision of the results of such research, the organisation of the system for observations and forecasts of the effects of climate change and the timely submission of annual, verified reports accounting for the use of the emission allowances to the National Administrator of the Emission Allowance Trading Scheme.

As a result of the audit, the Supreme Audit Office had a positive opinion on the status of implementation of selected provisions of the United Nations Framework Convention on Climate Change, despite the irregularities found.

In addition, the Supreme Audit Office took note of the effectiveness of the actions taken, as a result of which, with the growing GDP, the following was maintained:

- the greenhouse gas emissions at the same level of 401,500 million Mg; and
- the reduction of greenhouse gas emissions at the level of 29% with respect to 1988 (the base year), whereas in the Kyoto Protocol Poland committed itself to achieve a 6% GHG reduction until 2012.

The amount of energy generated by renewable energy sources was increased from 4,222 GWh to 6,200 GWh, i.e. by 46.8%.

Russian Federation

RESULTS OF THE "PARALLEL PERFORMANCE AUDIT OF PUBLIC FUNDS ALLOCATED FOR THE RUSSIAN FEDERATION TO MEET ITS COMMITMENTS ARISING FROM THE KYOTO PROTOCOL TO THE UNITED NATIONAL FRAMEWORK CONVENTION ON CLIMATE CHANGE" FOR 2006-2008: REVIEW

BASIC INFORMATION ON NATIONAL AUDITS (NAME, AUDITEES AND OTHER INFORMATION). TIME FRAMEWORK OF THE AUDIT

In accordance with the Work Plan of the Accounts Chamber of the Russian Federation for 2009 and based on the "EUROSAI Common Position on Cooperation (Terms of Reference) in Conducting a Coordinated Parallel Audit of Climate Change" approved in Warsaw on January 16, 2009, the European Supreme Auditing Institutions carried out the "Parallel Performance Audit of Public Funds Allocated for the Russian Federation to Meet its Commitments Arising from the Kyoto Protocol to the United Nations Framework Convention on Climate Change" for 2006 – 2008.

The auditees are the following organizations:

- Ministry of Economic Development of the Russian Federation;
- Ministry of Natural Resources and Ecology of the Russian Federation;
- Ministry of Industry and Trade of the Russian Federation;
- Ministry of Energy of the Russian Federation;

- Federal Service of Hydrometeorology and Ecological Monitoring;
- Federal Service of Ecological, Technological and Atomic Supervision;
- State Institution "Institute of Global Climate and Ecology under the Federal Service of Hydrometeorology and Ecological Monitoring and Russian Academy of Sciences";

The audit analyzed the disbursement of federal resources channeled to respective federal executive authorities and other organizations for the Russian Federation to be able to meet its commitments under the United Nations Framework Convention on Climate Change and Kyoto Protocol.

PURPOSE AND SCOPE OF AUDIT

The purpose of the audit was to analyze the RF commitments arising from the Kyoto Protocol to the United Nations Framework Convention on Climate Change and relevant annexes.

The subject of the audit was as follows:

- regulations and other documents of the Russian Federation approved in the area of climate change and related to the implementation of provisions laid down in the Kyoto Protocol to the United Nations Framework Convention on Climate Change;
- information received by the Accounts Chamber by requests from relevant ministries, agencies and other organizations;
- financial reports, statistics, other data and indicators showing the participation of the Russian Federation in the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

The EUROSAI Framework Program on Climate Change Audit: research, mitigation, and control.

MAIN AUDIT FINDINGS

Following the ratification of the Kyoto Protocol the Government of the Russian Federation approved a number of documents to prepare for meeting the commitments undertaken by the Russian Federation.
According to the provisions of the Kyoto Protocol recorded in the national legislation (Federal Law of the Russian Federation No. 128 of November 4, 2004 "On Ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change"), the Russian Federation undertakes not to exceed the fivefold value of the base year emissions in the first commitment period (2008 – 2012). The base year for the Russian Federation is: 1990 for CO_2, CH_4, and N_2O emissions and 1995 for HFC, HFC и SF_6 emissions. The fivefold value of base year emissions ("assigned amount") is 16 617 095 319 tons as CO_2- equivalent.

The Russian legislation contains provisions defining the organizational network for meteorological and climatic observations, forecasts of climate changes and their impact as well as control of anthropogenic emissions and greenhouse gas absorption levels.

The Federal Service of Hydrometeorology and Environmental Monitoring is regulating procedures providing for the Russian Federation to meet its commitments. It is an authorized national body that makes an assessment of anthropogenic emissions from sources and absorption by greenhouse gas absorbents, compiles and keeps the Russian Register of Carbon Units.

The Federal Service of Hydrometeorology and Environmental Monitoring (further – Rosgidromet or Service) is an authorized body that provides for the assessment of anthropogenic emissions from sources and absorption of greenhouse gases by absorbents non-regulated by the Montreal Protocol; it compiles and keeps the National Cadastre of anthropogenic emissions from sources and absorption of greenhouse gases by absorbents. The Service acts as a methodological center for the preparation of annual national cadastres.
In compliance with the Resolution of the Government of the Russian Federation Rosgidromet keeps a National Cadastre and drafts a national report, which virtually constitutes the informational system of emissions control on the territory of Russia.

The Federal Service of Hydrometeorology and Environmental Monitoring jointly with the Ministry of Economic Development participates in projects on reduction of emissions and/or increased absorption of greenhouse gases from the atmosphere. The State Institution "Institute of Global Climate and Ecology under the Federal Service of Hydrometeorology and Environmental Monitoring" serves as a methodological center for the preparation of annual national cadastres of anthropogenic emissions from sources and absorption of greenhouse gases by absorbents.

The Federal Service of Hydrometeorology and Environmental Monitoring, State Institution " "Institute of Global Climate and Ecology under Rosgidromet and Russian Academy of Sciences", and 16 scientific research organizations are engaged in assessing and forecasting climate change and climatic resources (agro climate, surface water, wind and solar energy and other resources), taking measures to mitigate changes and stabilize climate, adapting to climate change, and looking after economic issues related to climate change.
The Russian Academy of Sciences carries out fundamental climate research and makes studies in the field of technologies.

The National Cadastre of anthropogenic greenhouse gas emissions has been submitted to the Secretariat of the United Nations Framework Convention on Climate Change on an annual basis from 1990 to 2007: for 1990 – 2004 – in 2007, for 1990 –2005 - in 2008, for 1990 – 2006 – in 2008, for 1990 – 2007 in April 2009. Pursuant to Article 7.4. of the Kyoto Protocol the Russian Federation furnishes the Secretariat of the United Nations Framework Convention on Climate Change with the records on assigned amounts (that is, methodology and estimates of the allowed amount of greenhouse gas emissions in the Russian Federation).

Table 1 displays figures of the annual inventory-taking of aggregate emissions from sources and absorption of greenhouse gases by absorbents (from 1998 to 2008 inclusive) that was carried out by the Intergovernmental Panel on Climate Change (further – IPCC) in compliance with the international standards.

Table 1.
Data of the National Report on Cadastre. Aggregate Emissions of Greenhouse Gases by IPCC Sectors (ml tons CO_2- equivalent)

Sector/category of sources	1990	1995	2000	2008*
Energy	2707.7	1772.4	1660.8	1745.0
Industrial processes	241.01	157.60	172.8	193.0
Use of solvents and other products	0.6	0.5	0.5	0.6
Agriculture	309.4	204.5	146.3	136.0
Land use, changes in the land use and forestry	177.7	- 155.8	348.0	157.0
Waste	64.7	57.2	62.5	71.0
Total	**3501.1**	**2036.4**	**2390.9**	**2302.6**

*Data are provided on the basis of preliminary estimates.

The analysis of data in Table 1 shows a slight growth as of early 2008 by the main source and the IPCC forecast – over 30% less than the 1990 level.

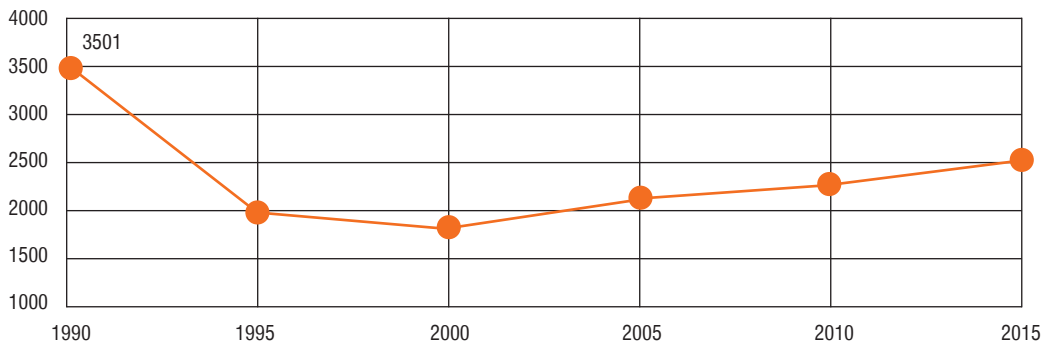
The bulk of "Kyoto" emissions in the Russian Federation – over 80% - are those in the so-called "Energy" sector. Internationally, they are classified as all emissions arising from mining, storage, transportation and usage of mineral resources – coal, oil, gas, and relevant refined products (81.4 percent in 2007). This group also includes fuel losses and leakages into the atmosphere. The second place is occupied by emissions from agriculture (animal breeding and agricultural lands), third – by emissions caused by production technologies and use of industrial products.

As to the distribution of the total emissions of the Russian Federation, the dominant role is played by the CO_2 (carbon dioxide) amounting to 72 per cent of the total emission. Nearly 22 per cent of the total emission is CH_4 (methane), and a much smaller role is played by N_2O and fluorine-containing gases (perfluorocarbons, hydrofluorocarbons and SF_6).

The breakdown of emissions by gas and by sector are of a quite stable character.
Installing a national system of inventory-taking, accounting and control over emission amounts and greenhouse gas absorption complying with the international standards not only helps integrate fully into the world economy but also enables to increase the number of implemented projects in the area of climate. There are projects in some regions of the country that are making use of mechanisms defined by the Kyoto Protocol. Some regions of the Russian Federation, for example, the Nizhniy Novgorod, Arkhangelsk, Sakhalin, Sverdlovsk and Chelyabinsk oblasts as well as Republic of Khakasia have already evaluated the amount of greenhouse gas emissions discharged by the enterprises and have preliminarily estimated the capacities for their reduction.

The chart below illustrates the forecast for the greenhouse gas emission trends in 1990 – 2015.

Table 2. Greenhouse Gas emission trends in 1990-2015 (actual and projected), ml tons CO_2- equivalent



In accordance with the forecast provided by the SI "IGKE under Rosgidromet and Russian Academy of Sciences" greenhouse gas emissions in the Russian Federation during the first commitment period of the Kyoto Protocol from 2008 to 2010 will be markedly lower that the 1990 base level. That will allow not only to meet commitments but also to carry the unused part of the emissions amount over to the next period provided the carry-over has been recorded in the next period rules.

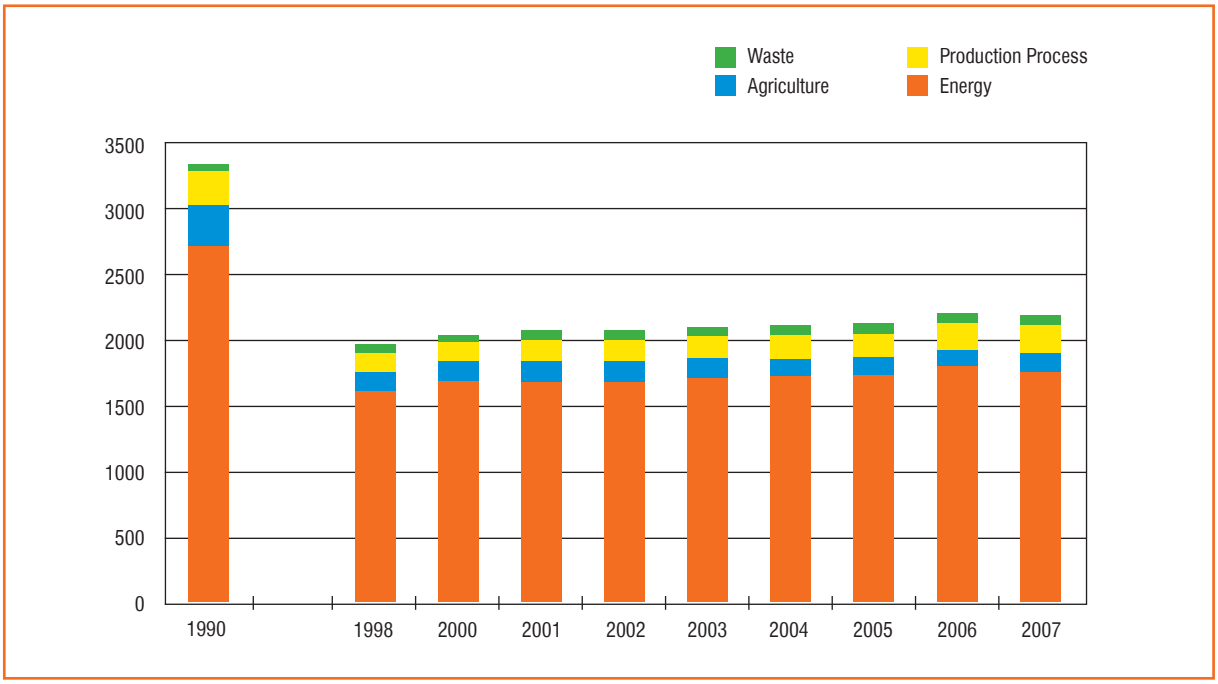
It is expected that the amount of the greenhouse gas emissions into the atmosphere may reach 2 500 ml tons of the CO_2- equivalent only in 2015 which is 1 000 ml tons less than the 1990 level.

The National Cadastre provides for the annual evaluation of emissions from sources and absorption of green house gases by absorbents in compliance with the methodology developed by the IPCC and approved by the third Conference of the Parties to the United Nations Framework Convention on Climate Change.

In accordance with the commitments imposed by the Kyoto Protocol the Resolution of the Government of the Russian Federation No. 215 of February, 20, 2006, decreed to set up a Russian Register of Carbon Units that will look after circulation, storage, transfer, acquisition, cancellation and withdrawal from circulation of emissions reduction units, certified reduction of emissions, assigned amounts and absorption as well as for the carry-over of emissions reduction units, certified emissions reduction and assigned amount. The joint Order of the Russian Ministry of Natural Resources and Russian Ministry of Economic Development of May, 7, 2006, instituted procedures for drafting and keeping the Russian Register of Carbon Units. The Resolution of the Government of the Russian Federation No. 1741 of December, 15, 2006 proposed by the Russian Ministry of Natural Resources appointed the Federal State Unitary Enterprise "Federal Center of Geo-Ecological Systems" to be the managing administrator of the Russian Register of Carbon Units and ensure compliance with the requirements of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

Under the Rosgidromet's guidance and with the help of 17 scientific research organization 4 national presentations were prepared and officially submitted to the Secretariat of the UN FCCC.

The figure below shows data of the RF National Cadastre of anthropogenic emissions and absorption of greenhouse gases by Sectors of emissions sources (Energy, Agriculture, Production processes, Waste). In accordance with the commitments undertaken, the Kyoto Protocol member countries annually present data on greenhouse gas emissions for the period starting from 1990. The data for 2007 were presented in 2009 in compliance with the effective international standards.



The analysis of the above indicators proves a steady reduction of greenhouse gas emissions in 1990-1998 due to industrial production fall. Greenhouse gas emissions in Russia reduced 40.4 per cent against 1990, the base year under the Kyoto Protocol.

The emissions have been increasing since early 1999 due to the production growth but the rates of growth remain quite low.

Due to the increased power consumption (along with the reduction of the GDP power capacity by 3.5 – 4.5 per cent a year caused by the lower contribution to the GDP of huge industrial power consumers) the total level of emissions in the Russian Federation has somewhat increased and amounted to 65.8 per cent of the 1990 base year and 66 per cent – in 2007, which is over 27 per cent lower than the 1990 emissions level.

Table 3 shows specific indicators (in per cent) of power consumption and greenhouse gas emissions in the Russian Federation from 1990 to 2007.

Table 3.

Indicator	Periods			
	1990	1998	2006	2007
GDP power capacity	100.00	119.00	79.0	73.4
Greenhouse gas emissions per a GDP unit (GDP carbon capacity)	100.00	103.00	66.9	62.1

By preliminary expert estimate, the growth of emissions continued in 2008. The year of 2009 expects reduction of emissions because of the economic crisis. With the renovation of the RF production facilities, introduction of cutting edge efficient technologies in power production and consumption, the greenhouse gas emissions will not exceed the base level until 2020.

The Ministry of Economic Development of the Russian Federation is responsible for the participation of the Russian Federation in the arrangements prescribed by Articles 6. 12. 17 of the Kyoto Protocol. At present the regulatory basis of the Russian legislation in this sphere is being drafted.

As to the emissions trading a concept of reserving some part of emissions for the commitment period (2008 – 2012 inclusive) was accepted. It implies that before the beginning of 2013 it would be possible to sell the lower of either all "empty" quotas recorded through the data of the last evaluation (possibly, of 2007) or 10 per cent of the country's total emission in 1990.

In fact, this approach enables to sell, since 2008, as many emissions as the country's economic development and the situation of the world market will allow.

For the purpose of Russian quantitative commitments on limitation and reduction of these emissions to be met in 2009, the Government of the Russian Federation by its Resolution No. 884 of June, 27, 2009 appointed the Joint-Stock Commercial Saving Bank (further – Sberbank) to be an authorized organization for participating in the greenhouse gas "emissions trading". The Sberbank will implement pilot projects in the context of the Kyoto Protocol, Article 17 (sale of the country's quotas in exchange of investment into Russian projects).
The examination of methodological and regulatory documents proves that Russia has developed a practical foundation for the clean development and relevant mechanisms on its territory. Russia has every right to participate in the implementation of any projects intended to reduce anthropogenic gases emissions on the territories of developing countries.
The ecological sphere is the strategic priority in our country.

CONCLUSIONS

Commitments under the UN FCCC are quite comprehensive and the federal executive authorities concerned are responsible for these commitments being met.
The audit findings show that the objectives and targets of the audit prescribed in Article 5 of the " EUROSAI Common Position on Cooperation (Terms of Reference) in Conducting a Coordinated Parallel Audit of Climate Change", have been reached.

The audit of reports on climate change and greenhouse gas emissions showed that the system of collecting, analyzing, processing and publishing data received through the assessment of anthropogenic emissions and

absorption of greenhouse gases as well as the submission of data to international organizations is timely and reliable. Reports on the scope and results of measures taken to mitigate climate change and adapt relevant consequences have been drafted in compliance with international requirements and duly accepted by international authorities.

There is a certain concept of legal regulation in the area under consideration but the regulatory basis for the RF meeting its commitments to comply with the Kyoto Protocol and UN FCCC is being drafted now. The legal regulation in this area is now carried out through by-laws.

The bulk of greenhouse gas emissions in the Russian Federation (81.4 per cent in 2007) is caused by mining, shipment, storage, processing and usage of fuels: oil, gas, coal and relevant refined products.
By general expert estimate, the projected rates of Russia's economic growth and consumption of fuel that is a major source of carbon dioxide emissions show that the greenhouse gas emissions increase is not to exceed 3% a year up to 2012. In 2007 emissions did not exceed 77 per cent of the 1990 level.

The analyzed performance of federal authorities in charge of the greenhouse gas emissions regulation allows to conclude that at the present time a certain concept of their cooperation in this area is in place.
During the period under audit – from 2006 to 2008 - all measures taken for the Russian Federation to meet its commitments under the Kyoto Protocol to the United Nations Framework Convention on Climate Change were financed by the federal budget resources allocated mainly for the scientific research and development of methods in the relevant sphere.
The concept of reserving some part of emissions for the commitment period (2008-2012 inclusive) enables Russia to regulate the market limiting the quotas supply and accumulating them for the following period (2013 – 2017).

RECOMMENDATIONS

The analysis of the Russian Federation's meeting its commitments arising from the Kyoto Protocol to the United Nations Framework Convention on Climate Change and relevant Annexes allowed us to work out proposals, which, if implemented, will ensure practical participation of the Russian Federation in the mechanisms of the Kyoto Protocol.

In view of the possible future agreements that should not hamper the economic growth of the Russian Federation it would be essential to intensify the inter-agency cooperation of federal executive authorities to meet commitments undertaken by the Russian Federation under the Kyoto Protocol to the United Nations Framework Convention on Climate Change. For this purpose it would be expedient to pass legislative acts that provide for deriving maximum benefits from international cooperation, encouraging to raise energy efficiency and introduce new technologies.

To increase economic efficiency (including energy efficiency) of the reduced emissions of harmful substances into the atmosphere, introduction of cutting edge methods of handling production and consumption waste, etc., we recommend to ensure planning and implementing measures related to the Kyoto Protocol.
Of great importance would be to take into account the following proposals related to the Russian Federation holding up its position for the period after 2012:

- quantitative commitments on greenhouse gas emissions reduction are to be undertaken that will not hamper the economic growth of the Russian Federation in the period after 2012;
- Commitments of the Russian Federation are to stipulated given Russia's specific national features (for example, low average annual temperatures, vast territory and length of transportation ways, its position on the world carbon fuel markets, and others). .

Complying with the rules of the Kyoto Protocol and bearing in mind that greenhouse gas emissions will not exceed the base level up to 2020, it would be possible to consider carrying part of the quotas for greenhouse gases emissions unused in the period of 2008 – 2012 over to the period after 2012.

This Review of Audit Results is submitted in accordance with the decision of the Board of the Accounts Chamber of the Russian Federation.

Auditor,
Accounts Chamber
of the Russian Federation — Mikhail V.Odintsov

Swiss Confederation

CO_2 REDUCTION MEASURES (2013-2020) ASSESSMENT OF THE DATA BASIS AND COST-BENEFIT CONSIDERATIONS UNDER THE REVISION OF THE CO_2 ACT

KEY FACTS

Switzerland ratified the Kyoto Protocol in 2003, committing itself to reducing its greenhouse gas emissions by a total of 8% in the first commitment period from 2008 to 2012. The legal framework for implementing Switzerland's international climate protection obligations is contained in the CO_2 Act. Effective the beginning of 2013, both the Kyoto Protocol and the CO_2 Act will have to be replaced. In line with the Kyoto Protocol, new reduction targets and corresponding measures will be taken for the next commitment period from 2013 to 2020.

In its meeting of 20 February 2008 on climate policy, the Federal Council initiated a revision of the CO_2 Act for the time after 2012. As a direct counterproposal to the "Popular Initiative for a Healthy Climate", the Federal Council commissioned a consultation proposal on revision of the CO_2 Act, containing measures to achieve the future CO_2 targets until 2020.

MANDATE & GOALS

The present assessment focuses on instruments and measures for reducing CO_2 emissions in Switzerland discussed in the spring of 2009 in connection with the consultation proposal for revision of the CO_2 Act. On the basis of a synthesis of existing literature, relevant facts on the topic will be compiled. One goal of the present assessment is to analyse the existing data basis, the underlying assumptions for calculations, and the existing cost-benefit considerations pertaining to CO_2 reduction measures. The present study is considered to be a supplementary and independent assessment of selected aspects relating to revision of the CO_2 Act and aims to provide additional insights and assistance for the benefit of affected government offices and Parliament.

SWITZERLAND HAS CLEAR CO_2 REDUCTION TARGETS

Under the ratified Kyoto Protocol, Switzerland has clear and binding CO_2 reduction targets until 2012. These targets were legally implemented in Switzerland with the CO_2 Act; the goals of the CO_2 Act in Switzerland are compatible with those set forth in the Kyoto Protocol. For the coming second commitment period from 2013 to 2020, there is currently a superordinate CO_2 reduction target of 20% or 30%, based on European Union targets. The Kyoto Protocol provides for sanctions where reduction obligations are not met. If a State fails to achieve its target within the commitment period, it must make up the difference in the following period, plus a 1/3 additional reduction of greenhouse gases. Moreover, the options for achieving the target using flexible mechanisms may be restricted.

For the time after 2012, Switzerland must therefore decide on more far-reaching reduction targets and measures. The proposal circulated by the Federal Council for consultations on 26 November 2008 envisages two options. As the evaluation of the consultations shows, the majority of respondents favour option 1 ("binding climate targets"), while option 2 ("binding steps toward climate neutrality") met with little support.

TARGETS TO BE ACHIEVED WITH A MIX OF INSTRUMENTS AND MEASURES

The revision of the CO_2 Act envisages a mix of several sector-specific domestic measures as well as the use of "flexible mechanisms" to achieve the post-Kyoto targets. On the one hand, the consultation proposal focuses on technical measures within Switzerland (technical measures for buildings and vehicles), which according to existing documentation and knowledge (i) have a high reduction potential, (ii) make a high contribution to reducing CO_2 emissions, and (iii) in general have positive (primary and secondary) utilisation effects. The CO_2 incentive tax on fuels (partially earmarked for a building refurbishment programme), which constitutes a core element of Swiss climate strategy, and emissions trading supplement voluntary and other CO_2- effective measures.

EMISSIONS DATA AND RESEARCH RESULTS ARE AVAILABLE…

Switzerland has an extensive data basis at its disposal on various relevant topics and is undertaking to further supplement and refine it on an ongoing basis. The gathering, measurement, and reporting of emissions data on relevant greenhouse gases is carried out according to UNFCCC requirements and is thus not subject to discussion.

In addition, numerous studies exist on the future development of greenhouse gas emissions and energy demand, which are regularly adjusted. Published research reports on the potential, effectiveness, and cost-benefit analyses of CO_2 reduction measures may generally be considered realistic and robust – despite various uncertainties concerning reference development and estimated potentials (see below). This is not least of all due to the fact that calculations in Switzerland are generally based on standardised methodological approaches, and research results can thus be compared with international results.

…BUT SUBJECT TO NUMEROUS UNCERTAINTIES

The abovementioned results of studies (such as development scenarios of GHG emissions, expected CO_2 reduction potentials, and estimated impact of measures) are based on numerous assumptions concerning the future framework data and conditions (energy price development, oil price, population and economic growth, discount rate, lifespan of measures, duration of CO_2 savings, etc.), which should always reflect the current status of information at the time of the study. Uncertainties exist in relation to the reliability and accuracy of the assumptions made, since they are subject to continuous changes. On the other hand, the scenarios and target values can only to a limited extent take into consideration (potential) implementation problems and obstacles in advance. As analyses after the fact show, however, these obstacles have a substantial impact on results and ultimately also on determination of the expected effectiveness and economic efficiency of CO_2 reduction measures. Reported CO_2 reduction potentials should therefore as a rule be considered upper (technical and/or economic) thresholds to be achieved in the best case – confirmed calculations and findings can only be provided after the fact, however.

SUPPLEMENTARY INFORMATION ENHANCES RELIABILITY AND REPLICABILITY OF RESULTS

Numerous research results in the assessed studies (e.g. reduction potentials of a measure) are often only provided in the form of a target value. More detailed information on fluctuations and confidence intervals of results, assumptions, and estimated impact of potential obstacles are largely missing. The reporting of results (e.g. CO_2 reduction performance, costs and/or benefits) in some studies or in their further use also does not always make clear whether the values apply each year, over the duration of a measure, or as a maximum reduction in the target year or a specific year (e.g. 2020). This makes it more difficult to replicate and interpret

data and results and also harbours the danger of possible misinterpretation or improper interpretation of results. Study results on reference developments require detailed consideration and statement of the underlying assumptions. Standardised reporting of relevant target values facilitates replicability, estimation of reliability, and comparability of CO2 reduction measures.

RECOMMENDATIONS

The results of the present assessment lead to the following recommendations for the attention of the Federal Department of the Environment, Transport, Energy and Communications (DETEC) - Federal Office of the Environment (FOEN); Swiss Federal Office of Energy (SFOE):

- ***Transparent representation of basic parameters, assumptions used, and results ("technical characteristics"):*** Assumptions used in studies should be reported transparently to improve replicability of calculations and interpretation of the results generated; the selection of assumptions should be briefly justified.

- ***Harmonisation of key result parameters: Uniform indication of duration and time unit over which a measure achieves CO_2 reductions or is calculated:*** To facilitate comparison and replication, CO_2 reductions should generally be reported in a uniform manner with respect to specific targets and measurement units.

- ***Use of different assumptions where influencing values are uncertain:*** To better estimate the effect of various measures on the research results and the interrelationships of reduction measures, calculations should more frequently be carried out with variations of relevant assumptions (as additional scenarios or suboptions) and include sensitivity analyses.

- ***Continuation of specific sectoral climate goals (indicators):*** Continuous monitoring of relevant sectors and emission types facilitates observation of (undesirable) developments of greenhouse gas emissions and provides additional information on the effectiveness of reduction measures in the respective sectors. On this basis, measures can also be evaluated more effectively, and interventions can be made at an earlier stage when undesirable developments arise.

Ukraine

INFORMATION OF THE ACCOUNTING CHAMBER OF UKRAINE TO THE JOINT REPORT ON EUROSAI INTERNATIONAL PARALLEL, COORDINATED AUDIT OF CLIMATE CHANGE

I. GENERAL INFORMATION ON AUDIT

Audit title: the audit of implementation by Ukraine of commitments under the Kyoto Protocol to the UN Framework Convention on Climate Change.
The audit report was approved by the resolution #16-2 of the Accounting Chamber Board on July 8, 2009.

Audit period: May-June 2009
The audit was carried out by an audit team consisting of 9 persons.

Basis for the audit

The audit was carried out in accordance with the work Plan of the Board of the Accounting Chamber for 2009 and the Work Plan of the EUROSAI Working Group on Environmental Auditing for 2008 – 2011.

Aim of the audit

The audit aimed to assess:

- implementation by Ukraine of the commitments ensuing from the Kyoto Protocol to the United Nations Framework Convention on Climate Change [KP],
- realization of the environmental investments involvement mechanism,
- effectiveness and efficiency of utilization of the state budget funds allocated for the above purposes during 2005 – 2008 and first three months of 2009.

Subject of the audit: legislative, normative and legal acts, order documents and other documents connected with the implementation by Ukraine of its commitments under KP, particularly, National Plan of Actions to Implement the Kyoto Protocol to the United Nations Framework Convention on Climate Change [National Plan], movement and utilization of funds of the State Budget of Ukraine allocated for the purposes of such commitments implementation.

Audited period

The audit covered the period from the date of KP coming into force, i.e. years 2005 – 2008 and the first three months of 2009.

Main auditees:

- Ministry for Nature Environment Protection [Ministry for Nature] – the main public body in the system of central executive authorities responsible for nature environment protection; the coordinator of activities on implementation by Ukraine of its commitments under UNFCCC and KP;
- National Environment Investments Agency [the Agency] – central executive authority responsible for the implementation of UNFCCC and the KP mechanisms as well as establishment and running of the national system for emission allowances trading;
- State Hydrometeorological Service of the Ministry for Emergency Situations and Protection of the Population from the Consequences of the Chornobyl Accident of Ukraine – governmental authority of public administration that is operating within the Ministry for Emergency Situations and Protection of the Population from the Consequences of the Chornobyl Accident of Ukraine and subordinated to it. Its tasks consist in organizing hydrometeorological and climate research of the Ukraine's territory, organizing collection and processing of observation data and its due utilization at the national and international levels, particularly, research and forecasting of global climate change, cooperation with international organizations and national hydrometeorological services of other countries, representation of Ukraine in the World Meteorological Organization and participation within its competencies in the implementation of UNFCCC;

The report was prepared based on the information from 35 central and local executive authorities responsible for the implementation of the National Plan.

II. MAIN CONCLUSIONS BASED ON THE AUDIT FINDINGS

1. Ratification by Ukraine of the UNFCCC and the Kyoto Protocol thereto, establishment by the Cabinet of Ministers of Ukraine of the inter-departamental commission responsible for implementation of the above as well as approval of the National Plan provides a possibility to involve considerable amounts of foreign investments purposed to modernize the sectors of the Ukrainian national economy and reduce the anthropogenic load to its territory.

2. During 2005-2008 the Government of Ukraine adopted normative and legal acts that have determined specific activities to implement international accords, procedure of emissions accounting system functioning and

emissions evaluation, carrying out projects of joint implementation and emission allowances trading.
However, the adopted acts have not determined the activities and the executives responsible to carry out by Ukraine systematic observations and establishment of the data banks connected with the climatic system, reduction or removal of indefiniteness as regarding factors, consequences, scope and timing of climate change as well as of its economic and social consequences.

3. Climate change observation system of Ukraine is out-of-date (almost 100 per cent wear and tear of equipment) and cannot comply with the UNFCCC requirements.
There was no implementation and further updating of the state task programs that determined the development of climate change observation system in Ukraine. They had been elaborated in accordance with the international requirements and expired in 2006.

4. National Plan was not carried out in full scope prior to the start of the KP mechanisms (2008 – 2012), particularly:

- national and regional plans of actions to mitigate the climate change were not adopted;
- it was not established the data bank of environmentally friendly technologies, information sharing on the utilization of such technologies between Ukraine and the Parties to the UNFCCC and the methods to reduce anthropogenic emissions by sources and enhancing the removal by sinks of greenhouse gases;
- draft laws on emission allowances trading, regulating the amounts of emissions and the removal by sinks of greenhouse gases were not presented to the Parliament for its consideration.

The main reason for the failure to implement the above activities is no proper funding.

5. The Government of Ukraine has launched the implementation of the mechanism to involve the environment investments envisaged by KP.

There are already 135 joint implementation projects adopted in Ukraine. Such projects are considered to be the most prospective economic instrument for Ukraine. 24 projects are already through the determination procedure. 9 projects have been approved; its implementation is to reduce the greenhouse gas emissions by 25.6 million ton of CO_2-equivalent. One of the projects has already taken its effect.

However, because of the Cabinet of Minister's delay in establishment of these projects infrustructure, the possibility to involve considerable direct foreign investments to the economy of the country is being lost.

6. Introduction at the current stage in Ukraine of the internal anthropogenic emission by sources allowances trading scheme in conditions when there is no necessary national legislation envisaged by the National Plan and when the big enterprises are being privatized and become the property of foreign investors can result in the reduction or liquidation of the expected results, expansion of the out-of-date technologies, loss of competitive positions at the market and possibility to act there as an equal partner.

III. MAIN AUDIT RECOMMENDATIONS

Taking into account the main audit results the recommendations of Accounting Chamber of Ukraine to the Cabinet of Ministers of Ukraine were as follows:

- to provide for the oligatory execution of the National Plan within the time frames stipulated by it;

- to provide for the development of the unified state task program for the development of the constructions and facilities for observation and forecasting of climate change, its consequences for the sectors of economy, systems of population life-support and environmental control;

- to stimulate the activities of executive authorities on establishing the infrustructure for the joint implementation projects, which are considered the most prospective economic instruments for Ukraine;

- to develop and submit for the consideration to the Parliament of Ukraine draft laws on emission allowances trading, regulating the amounts of greenhouse emissions and its removal by sinks.

MAIN AUDIT FINDINGS

1. Results of auditing the legal and organizational framework to implement the commitments under the UNFCCC and the KP.

In order to provide for the implementation of the UNFCCC the Cabinet of Ministers of Ukraine has established the Inter-Departamental Commission by its Order # 583 dated April 14, 1999 and adopted a document regulating the activities of the Commission.

With its regulation dated August 18, 2005 the Cabinet of Ministers of Ukraine adopted National Plan of Actions to Implement Provisions of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

Due to the ratification by Ukraine of the UNFCCC and the Kyoto Protocol to it, the establishment by the Cabinet of Ministers of Ukraine of the Inter-Departamental Commission and the adoption of the National Plan it became possible to involve by Ukraine considerable amounts of foreign investments to modernize the sectors of the national economy and reduce the anthropogenic load to its territory.

In 2006 the Cabinet of Ministers of Ukraine approved the Procedure of preparation, consideration, approval and implementation of the projects aimed to reduce amounts of anthropogenic emissions of greenhouse gases by sources (joint implementation projects), determined the Order of coordination of measures on implementation by Ukraine of its commitments under the UNFCCC and the KP and approved the Order of functioning of the national system for evalutation of anthropogenic emissions and removal by sinks of greenhouse gases not regulated by the Montreal Protocol on Substances that Deplete the Ozone Layer.

During 2007 – 2008 the Cabinet of Ministers of Ukraine:

- established the Agency as the central executive authority guided and coordinated by the Cabinet of Ministers trough the Minister for Nature in accordance with the procedure determined by the Government,
- approved the Procedure of examination, approval and implementation of targeted environmental (green) investments within the KP commitments period as the complex of measures aimed at emissions reduction and enhancement of the removal by sinks of greenhouse gases and adaptation to climate change consequences,
- adopted the Regulation on the National Electronic Registry of anthropogenic emissions and removal by sinks of greenhouse gases, which regulation determines that amendments to the register shall be done by the Agency upon the decision of the Government.

The main source of information about climate in Ukraine is the data of the state system of hydrometeorologicl observations of the State Hydrometeorological Service of the Ministry for Emergencies of Ukraine. The procedure, the methods and technologies of carrying out hydrometeorological observations are unified and correspond to the requirements of the World Meteorological Organization.

The Climate Program of Ukraine for the period until 2002 was adopted by the Decree #650 dated June 28, 1997 of the Cabinet of Ministers of Ukraine in order to establish the efficient system for providing central state and self-government authorities, armed forces, enterprises, institutions, oranizations and the population of Ukraine with the hydrometeorological information and forecasts on possible environmental, social and economic consequences of fluctuations and change of climate.

The customer of the Program was the State Hydrometeorological Service of Ukraine [the State-HydrometService]. The realization of he Program was to provide:

- the introduction in Ukraine of an efficient system for climate monitoring and forecasting that would correspond to the needs of the state and the requirements of the World Climate Programme as well;
- development of recommedations on how to evaluate possible enviornmental, social and economic consequences of regional climate change in Ukraine with the aim of adaptation of the country's economy to new climatic conditions;
- improvement of utilization and protection of Ukraine's natural resources that depend from the climatic conditions;
- reduction of losses from adverse weather conditions and disasters caused by fluctuations and change of the regional climate of Ukraine;
- a contribution to the development of basic and applied research of climate change in Ukraine that would promote to the image of the Ukrainian science in the world;
- creating preconditions for implementation by Ukraine of its international commitments under the UNFCCC.

A number of scientific results were obtained within the implementation of the Program. Particularly, it was established the Climate Inventory of Ukraine and the monograph «Climate of Ukraine» that have become the most overall research of the Ukraine's climate and its change under natural and anthropogenic factors.

The financing in the amount of UAH 8.7 million was envisaged in the state budget for the implementation of the Climate Program of Ukraine (1998 – 2002). Actually, UAH 1.4 million were allocated for this period which was 16.5 per cent of the amounts envisaged. Climate Program of Ukraine was not implemented and its capital-intensive measures were not carried out.

Upon that, the State Program of scientific and technical re-equipment of hydrometeorological observations system and basic network of nature envrionment pullution observation ("Meteorology" program) was approved by the Decree #579 dated May 29, 1996 of the Cabinet of Ministers of Ukraine aimed at sustainable functioning and further development of the national hydrometeorological service. The Decree # 1600 dated November 29, 2001 by the Cabinet of Ministers of Ukraine has extended the validity of the State Program "Meteorology" until 2006.

However, the funds actually allocated for the implementation of the Program amounted to UAH 2.9 million which was only 2 per cent of UAH 14.1 million stipulated by the Program for 2002 – 2006. At that, the funds were allocated only to the scientific-research and scientific-design work. As within the above Program, there were only 26 out of 78 scientific-research works provisioned by the Program that were implemented in Ukraine in full scope.

In total, during 2007 – 2008 and first three months of 2009 the allocations for the implementation of the State-Hydromet-Service's tasks by three budget programs amounted to UAH 281.3 million.
At that, from 2007 an individual state task program to develop the system of hydrometeorological observations and forecasting possible envrionmental, social and economic consequences of climate fluctuations and change has not been available, and planned capital costs for the development of constructions and facilities for hydrometeorological observations and forecasting from the common fund of the budget has not been envisaged.

As a consequence, the major part of measuring equipment being used in climate change observations was produced 30-40 years ago; it has been depriciated with wear and tear 92 per cent.

Thus, during 2005 – 2008 the Government of Ukraine approved normative and legal acts that have determined measures to implement international accords, procedures of the emissions accounting and evaluation systems functioning, carrying out joint implementation projects and emission allowances trading schemes. However, the adopted normative and legal acts have not determined the activities and the responsible execu-

tives regarding the implementation by Ukraine of systematic observations and establishment of data banks connected with climatic system, reduction or removal of uncertanties about factors, consequences, scope and timing of climate change, its economic and social afermath.

2. Results of auditing the financing and the implementation of the National Plan.

The Ministry for Nature planned to finance the implementation in 2005-2009 of the National Plan through the budget program "Enhancing the Atmospheric Air Quality".

On the whole, during 2005 – 2008, as in accordance with the approved list of nature protection measures, the Ministry for Nature planned to carry out 93 measures to the total amount UAH 30.3 million. As of January 1, 2009, only 9 measures based on 17 various agreements were carried out, allocations amounting to UAH 5.4 million.

As consequence, the National Plan prior to the launch of the KP mechanisms (2008 – 2012) has not been implemented in full scope, particularly:

- the national and regional plans on climate change mitigation were not approved;
- the data bank of environmentally friendly technologies, exchange of information on the tecnologies utilization between Ukraine and the Parties to the UNFCCC and methods of emissions reduction and enhancing the removal by sinks of greenhouse gases was not created;
- the draft laws on emission allowance trading, regulating the amounts of greenhouse emissions and removal by sinks were not submitted for consideration of the Parliament.

The main reason for no implementation of the above activities was failure to provide for its financing, which was accompanied by the infridgements of financial nature. As a result, 30 per cent of the state budget funds used by the Ministry during 2005 – 2008 were utilized not efficiently.

3. Analysis of implementation of the KP environmental investments mechanisms.

In accordance with the Decree #1028-p "On putting in requisition the units (parts) of the assigned amount" of the Cabinet of Ministers of Ukraine dated July 30, 2008, the Agency has entered information to the National Electronic Registry of anthropogenic emissions and removal by sinks of greenhouse gases about putting in requisition the units (parts) of the assigned amount numbered in 4 604 184 663 million ton of carbon dioxide equivalent.

On October 27, 2008 the national registry of Ukraine was linked with the International Transactions Log[37] (Go-Live procedure), all the available under the Kyoto Protocol units (parts) of the assigned amount (4 604 184 663 ton of carbon dioxide equivalent for the first commitments period 2008 – 2012) was put in requisition and the first transaction on transfer the assigned units (parts) of the assigned amount was carried out.

Taking into account that the part of the assigned amount shall be calculated as based on the emissions amount in the 1990[38] base year (***920 836 933 ton of carbon dioxide equivalent emissions***) and the Ukraine's quantified commitments under the Kyoto Protocol on emissions limitation and reduction (100 per cent for Ukraine), the part of the assigned amount for Ukraine is 4 604 184 663 ton of carbon dioxide emissions.[39]

*For reference. Calculation: 5 years * 920 836 933 ton of carbon dioxide equivalent registered in 1990.*

Pursuant to the requirements of the paragraph 18 of the Decision 15/CMP.1 the commitments period reserve

37. International Transactions Log – international registry of emissions run by the UNFCCC Secretariat in Bonn. The registry ensures secure transfer of emission reduction units between countries.

38. The emissions amount in the base year 1990 for Ukraine was 920 836 933 ton of CO_2-equivalent.

39. Carbon dioxide equivalent (CO_2) – conventional unit of any greenhouse gas, the greenhouse effect of which is equal to the greenhouse effect of one ton of carbon dioxide emission. Translation of greenhouse gas emissions in physical units to the carbon dioxide equivalent is done with the application of officially approved coefficients (global warming potentials - GWP).

for Ukraine is necessary for the Kyoto Protocol commitments period.[40] For the moment of submission of the 1990 – 2007 inventory for Ukraine the commitments period reserve for Ukraine was 2 215 917 400 ton of carbon dioxide equivalent.

*For reference. Calculation: 5 years * 443 183 480 = 2 215 917 400 ton of carbon dioxide equivalent (443 183 483 is the greenhouse emissions 2006 registered at the moment of reserve calculation).*

145 letters requesting for support in launching joint implementation projects were submitted to the Ministry for Nature and the Agency during 2005 – 2008 and four months of 2009. As of the moment the audit was carried out, the above authorities have issued 135 letters of support; the remaining 10 letters are being currently considered. No refusal on issuing letters of support has been found.

Following scientific and technical documentation, the implementation of the above 135 projects can result in aggregate emission reduction in the amount of 130.6 million ton of carbon dioxide equivalent within the Kyoto commitments period (until 2012) and facilitate the involvement of foreign investments by Ukrainian enterprises.

From the above 135 joint implementation projects, which deem to be the most efficient economic instrument of the KP for Ukraine, 24 projects have been already through the determination procedure and responded by letters of support. From those 24 projects 9 projects were approved. These have to reduce the greenhouse gas emissions by 25.6 million ton of carbon dioxide equivalent.

At the same time, the Cabinet of Minister's delay in establishment of these projects infrustructure can result in loss of the possibility to involve considerable direct foreign investments to the economy of the country. Additionally, since 2009 the Cabinet of Ministers has been running the greenhouse gas emissions allowances trading scheme through the Agency.

To execute the relevant orders of the Government the Agency has concluded 4 agreements on trading the units of the assigned amount equal to 44 000 000 ton of carbon dioxide equivalent. The remaining agreements are at the stage of development and signing.

However, the above activities has poor methodical background because of the insufficient strategic forecasting of climate change and its consequences for the sectors of economy as well as the population and ecosystems life-support systems.

Upon that, as pursuant to the audit findings, introduction at the current stage in Ukraine of the internal anthropogenic emission by sources allowances trading in conditions when there is no necessary national legislation stipulated by the National Plan and when the big enterprises are being privatized and become the property of foreign investors can result in the reduction or liquidation of the expected results, expansion of the out-of-date technologies, loss of competitive positions at the market and possibility to act there as an equal partner.

40. Commitments period reserve – limitation of trading (transfer) of emission allowances between countries of the Appendix B to the Kyoto Protocol, aimed at prevention of large-scale trading posing the risk of non-implementation of the Kyoto Protocol.

RAČUNSKO SODIŠČE
REPUBLIKE SLOVENIJE

NKÚ

RH Der Rechnungshof

Communiqué

of

the President
of the Supreme Audit Office of the Slovak Republic

and

the President
of the Court of Audit of the Republic of Slovenia

and

the President
of the Supreme Audit Office, Czech Republic

and

the President
of the Austrian Court of Audit

on the Results of the Coordinated Audit of Air and Ozone Layer Protection and Implementation of Related International Agreements

2008

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REPUBLIKE SLOVENIJE

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Preamble

The SAIs of the Slovak Republic, the Republic of Slovenia, the Czech Republic and Austria, concerned with the issues of air and ozone layer protection and the issues of climate change, submit these results of the Coordinated Audit of Air and Ozone Layer Protection and Implementation of Related International Agreements to the competent national and international authorities and institutions as well as to the general public.

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I.
Introduction

Air pollution has negative effects on human population and environment also beyond the borders of the countries producing pollution. In this regard, international cooperation is needed to tackle this problem. The Convention on Long-range Transboundary Air Pollution has been in force since 1984 and it has been a useful instrument for emission reduction. It focuses on reducing emissions of pollutants, taking into consideration technical and economic feasibility and the impact on the environment, with a view to reducing long-range transboundary air pollution. The Convention was followed up by eight protocols focusing on the monitoring and valuation of long-range transmission of pollutants, the reduction of emissions of sulfur and nitrogen oxides, volatile organic compounds, heavy metals and persistent organic pollutants. Protection of the ozone layer is not effective without common activities of all the countries that can contribute to its depletion. Ozone layer depletion has been reduced by the Montreal Protocol on Substances that Deplete the Ozone Layer and all its amendments. Climate change that can be caused by increasing emissions of greenhouse gases (GHG emissions) is one of the most serious global threats which human beings have to face. The international community has been trying to find ways of mitigating climate change for more then a decade. The main convention relating to this issue is the UN Framework Convention on Climate Change and the Kyoto Protocol to the UN Framework Convention on Climate Change. These create instruments used by countries all over the world to cope with climate change.

All these conventions have been transposed into European legislation.

Close cooperation among SAIs is thus needed for comprehensive evaluation of measures dealing with these problems internationally.

II.

Common Audit Topics

Having regard to global implications of issues relating to compliance with legal regulations in regard of the use of funds for air and ozone layer protection and the execution of measures to ensure the implementation of international obligations in the field of air, climate and ozone layer protection in accordance with the above mentioned international conventions, protocols and other related EU directives and guidelines, the following common audit topics were adopted:

- Compliance with international agreements - meeting limits and targets
- Implementation for national conditions - system of responsibilities and obligations, measures, legislation, national strategies and action programs
- Emission trading system
- Financing system

III.

Different Approaches of the Participating SAIs

Different legal backgrounds and different audit approaches of the Supreme Audit Office of the Slovak Republic (SAO SR), the Court of Audit of the Republic of Slovenia (CA of Slovenia), the Supreme Audit Office, Czech Republic (SAO, CR) and the Austrian Court of Audit (CA of Austria) resulted in a wide range of topics being covered by the performed audit of implementation of all international conventions and related protocols in the field of air and ozone layer protection.

The differences appeared in audit topics, audit scope as well as audit timeframes and selected auditees.

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SAO SR performed the audit of management of funds spent for air and ozone layer protection and implementation of related international agreements in this sphere. Within the scope of audit, implementation of commitments of the Slovak Hydrometeorological Institute in the field of monitoring and measuring air quality and limit values of air pollution, ozone and GHG emissions was examined. In addition, the audit examined compliance with the stipulated conditions in granting air and ozone layer protection and use of these funds by selected beneficiaries. The audited period addressed the years 2005 and 2006.

CA of Slovenia examined air protection and measures taken to reduce emissions of important pollutants, ozone layer protection and measures taken to reduce emissions of ozone depleting substances and measures taken to cope with climate change. The audited period addressed the years 2005 and 2006.

SAO, CR focused on the audit of management of finances levied and used in the field of air protection. The audited period addressed the years 2003 to 2006. In addition, SAO, CR focused on the audit of funds used for assistance in air protection by the beneficiaries of financial aid from the State Environmental Fund.

CA of Austria aimed its audit at the implementation of Kyoto Protocol commitments, i.e. climate change issues and the emission trading system. The audited period addressed the years 2002 to 2007.

IV.

Common Audit Conclusions and Recommendations

The audits performed by the participating SAIs confirmed that commitments relating to international conventions on air and ozone layer protection were in principle fulfilled, only Directive 96/62/EC of the Council on ambient air quality assessment and management and related regulations were not being complied with. In the territory of the Czech Republic, Slovak Republic and Slovenia the monitoring detected exceeding of thresholds of certain pollutants, specifically PM10 particles.

The Slovak Republic and the Czech Republic are meeting the Kyoto targets. Both countries committed to reduce GHG emissions by 8% compared to the year 1990 in the period 2008 - 2012, which is achieved continuously and there are conditions created for the future achievement.

The Republic of Slovenia committed to reduce GHG emissions by 8% compared to the year 1986 in the period 2008 - 2012. Difficulties were detected in creation of comprehensive policy on climate change in Slovenia. The GHG emission mitigation principles were not incorporated into other key sectorial policies (e.g. agriculture, transport and energy). CA of Slovenia recommended establishing a responsible body on the governmental level to ensure forming comprehensive policy on climate change and to carry out continuously sectorial measures.

Austria is obliged to reduce GHG emissions by 13% compared to the year 1990. Following the current findings, the development of emissions in the sectors housing, industry and traffic made the Kyoto target unlikely to be achieved. CA of Austria recommended taking additional measures to meet the targets of the period 2008 - 2012, as well as commitments for the period after 2012. The first period of the national emission trading system showed no significant benefit for the environment, but enabled the participants of the system to start well prepared into the second period.

The audit findings were approved in individual national audit reports. The reports together with the proposal on measures to be taken were submitted to the respective involved ministries and to the legislative bodies of the participating countries. Brief versions of these reports on the results of audits performed by individual SAIs are contained in the annexes of the Communiqué.

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The main recommendations of the participating SAIs:

- Measures to fulfill the directives relating to ambient air quality assessment and management should be elaborated.
- Implementation of measures taken to meet objectives and targets relating to international regulations on air and ozone layer protection should be regularly revised by responsible bodies to meet set targets.
- All sectors involved in mapping all programs and projects for which funds are provided should cooperate closely.
- National measures for the mitigation of GHG emissions must have priority over buying certificates in the system of the flexible Kyoto mechanisms.
- There is a need for harmonization of the allocation process on the European level.
- The national emission trading systems should pay regard to the state of the art and energy efficiency of individual plants during the allocation process.

V.
Final Provisions

The Coordinated Audit endorsed the benefits of cooperation among SAIs in the field of environmental auditing and endorsed the importance of information and experience sharing in this field in compliance with the objectives and principles of international cooperation among SAIs. It enabled the participating SAIs to compare different approaches of the four neighboring countries to reach the targets of the international commitments. The results of the Coordinated Audit shall add value to the national work of the participating SAIs by increasing the level of information of national reporting and for decision makers.

The Communiqué together with its annexes were submitted to INTOSAI and EUROSAI working groups on environmental auditing and shall form the basis for discussions at international level. In addition, the Communiqué together with its annexes are published at the websites of the participating SAIs and are available to the general public.

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Annexes

Annex I
Table on Achievements of Objectives and Time Limits

Annex II
Table on the Emission Trading System

Annex III
National Audit Reports

Annex IV
Audit Preparation and Development

Supreme Audit Office of the Slovak Republic
Audit Coordinator
www.sao.gov.sk
2008

Austria

IMPLEMENTATION OF THE AUSTRIAN CLIMATE STRATEGY ON THE FEDERAL LEVEL AND AUSTRIAN EMISSIONS TRADING SCHEME

COORDINATED AUDIT OF AIR AND OZONE LAYER PROTECTION AND IMPLEMENTATION OF RELATED INTERNATIONAL AGREEMENTS

INTRODUCTION

1.1. In autumn 2007 the Austrian Court of Audit (ACA) audited the implementation of the Austrian Climate Strategy on the federal level and the Austrian Emission Trading Scheme (ETS). Main audit objectives were to investigate, whether the obligations of the KyotoıProtocol can be fulfilled and whether the specifications and targets of the Austrian Climate Strategies and the ETS were realistic. The contribution of the ETS to reaching the Kyoto targets by allocating certificates was to be evaluated.

1.2. The ACA emphasizes the fact, that the reduction of greenhouse gas emissions is not only a duty laid down in international agreements, but according to the current state of knowledge is essential to prevent or at least mitigate the disastrous consequences of climate change. Climate change is not a future scenario, but is a fact already taking effect on Austria as living space, business location and target of international tourism.

IMPLEMENTATION OF THE CLIMATE STRATEGY

2.1. Austria committed itself to reduce its greenhouse gas emissions by 13 % compared to the base year 1990. If the reduction commitment is not achieved, the Kyoto Protocol provides sanctions. Within the European Union non-compliance with the target can lead to an infringement procedure.
In 2002 the Federal Government decided the "Austrian Strategy to reach the Kyoto Target" (Climate Strategy). Since this turned out to be insufficient for reaching the Kyoto target, in 2007 the Council of Ministers decided the "Adaptation of the Austrian Climate Strategy to reach the Kyoto Target 2008 – 2012". Emission reductions were assigned to several sectors:

Table 1. Greenhouse Gas Emissions (million tons CO_2 equivalents) in Sectors, Target Values of Climate Strategies – Actual Values

GDP power capacity	Actual 1990	Actual 2000	Target Climate Strategy 2002	Actual 2006	Target Climate Strategy 2007
Housing	15.1	13.7	10.5	14.2	11.9
Energy production	13.8	12.4	12.4	15.5	13.0
Waste management	3.7	2.7	3.7	2.2	2.1
Traffic	12.7	18.1	16.3	23.2	18.9

GDP power capacity	Actual 1990	Actual 2000	Target Climate Strategy 2002	Actual 2006	Target Climate Strategy 2007
Industry	22.1	23.4	20.8	25.3	23.3
Fluorinated gases	1.6	1.3	1.8	1.5	1.4
Miscellaneous	1.0	1.1	0.7	1.3	0.9
Agriculture	9.2	8.4	4.4	7.9	7.1
LULUCF					-0.7
Total	79.2	81.1	70.6	91.1	77.8
Contribution JI/CDM					-9.0
Kyoto target					68.8

Important sectors or the scopes for the implementation of the Climate Strategy are within the competence of the laender. Despite their assistance, greenhouse gas emissions rose from 2002 to 2006. No consensus could be reached so far between the Federal Government and the laender on the adaptation of the Climate Strategy 2007.

2.2. The ACA states, that the measures laid down in the Climate Strategy 2002 and taken by all authorities were not sufficient to achieve a trend reversal of emissions. Especially the development of housing, traffic and industrial plants not covered by the ETS raise doubts as to the achievement of the Kyoto target. From the point of view of the ACA an increased involvement of the provinces would be key for the implementation and success of the Austrian Climate Strategy.

GREENHOUSE GAS EMISSIONS IN AUSTRIA

3.1. In 2006 greenhouse gas emissions attributed to Austria reached 91.1 million t CO_2 equivalents. Regarding the reduction target of 68.8 million t there was a discrepancy of 22.3 million t (32.4 %).

The sector housing deviated from the target by 2.3 million t. A substantial reduction of heating demand can only be achieved by an accelerated thermal renovation of existing buildings. From a total of 2.63 billion EUR of housing subsidies only 0.35 billion EUR were applied for the reduction of heating demand by thermal renovation.

The Climate Strategy assigned a reduction target of 2.5 million t to industrial plants not covered by the ETS, which represents a reduction by 40 %.

The sector traffic not only showed the highest increase of emissions from 1990 to 2006 (83 %), its share in total emissions also rose from 16 to 26 %. The discrepancy to the target value of the Climate Strategy was 4.4 million t. The measures taken by the Federal Government up to now such as the admixing of fuels produced from biomass, the increase of the tax on mineral oil in 2007 and the forthcoming graded tax on the initial registration of cars and motorbikes depending on emissions will show effect, albeit only marginal in some parts.

3.2. The ACA considers that the Kyoto target is unlikely to be achieved regarding the currently sluggish implementation of measures laid down in the Austrian Climate Strategy. In the relevant sectors there was no

evidence of a significant emission reduction. Therefore the ACA doubts the Kyoto target achievement. Quantitatively effective measures with relevant impacts in the short- or long-term were not provided.
Even when making use of flexible mechanisms to the maximum allowable extent there is an urgent need of action for inland measures to be taken. Efficient measures have to be taken in the sectors more quickly and intensely and an enhancement of flexible mechanisms has to be provided for compensation.

FUNDING

4.1. The Kyoto Protocol stipulates, that national measures contribute with a significant share to the emission reduction, and that flexible mechanisms only support the target achievement. In addition to the JI/CDM-programme already being carried out only 11 million t CO_2 equivalents more (2.2 million t per year) can be covered by 5 flexible mechanisms according to international agreements, which would require an estimated amount of 275 million EUR. But even the funding provided for the current programme for flexible mechanisms is insufficient to reach the objective of buying 45 million t CO_2 equivalents in the period 2008 – 2012. 34.5 million t CO_2 equivalents (6.9 million t per year) remain, which have to be reduced by national measures.

The Austrian environmental support scheme, which is focussing on trade and industry, was extensively aligned with projects reducing greenhouse gas emissions. The emission reduction initiated by the scheme accounted for approx. 4 million t CO_2 equivalents since 2002. Because of the limited funding of the scheme project proposals submitted and not yet decided represented twice the annual funding.

4.2. From the point of view of the ACA flexible mechanisms are no alternative to reducing greenhouse gas emissions by national measures, but represent a measure effective only in the short-term to prevent sanctions. National emission reductions can be achieved by relatively inexpensive regulatory and fiscal policies or by extensively funding new and costly environmental technologies. The costs for national measures cannot not be quantified by the ACA from today's prospect. At the time of the audit the costs per t CO_2 equivalent in the Austrian environmental support scheme were significantly lower than those for flexible mechanisms. Regarding the efforts necessary to reach the Kyoto target the ACA recommends providing appropriate funding of the existing support scheme.

EMISSIONS TRADING SCHEME (ETS) IN AUSTRIA

5.1. An essential instrument to reduce greenhouse gas emissions is the trading with emission allowances (EA). In October 2003 the European Commission released the Emission Allowance Trading Directive. It forms the statutory framework concerning EA, plants and gases to be included, the allocation of EA to the plants, the registration of EA, emission monitoring and sanctions. In some areas such as the auctioning of EA, the allocation process or the reserve for new ETS participants the directive allowed diversity in interpretation for the national implementation.

5.2. The ACA recommends the Austrian Federal Government to aspire to a reduction of the wide scope of interpretation of the directive at EU level to eliminate any distortion of competition.

CHARACTERISTICS OF THE AUSTRIAN ETS

6.1. In the first period (2005 to 2007) 197 plants were included in the Austrian ETS. From 33 million EA annually distributed (average 2005 – 2007) 38 % were allocated to plants of the energy sector and 62 % to plants of the industry sector.
Generally speaking the allocated EA corresponded to the CO_2 emissions. But while industrial plants received a surplus of EA, the plants of the energy sector received less EA than they would have needed to cover their emissions. The relative amount of CO_2 emissions of the specific plants differed significantly. In 2006 the biggest plant emitted approx. 13 % of the total emissions, while all plants with emissions of less than 10.000 t CO_2 per year (about one third of all plants included in the ETS) emitted less than 1 % thereof. In Austria the ETS covered about 42 % of the total CO_2 emissions.

6.2. The ACA considers the coverage of 42 % of the Austrian CO_2 emissions by the ETS positive. To extend the effect of the system, the ACA recommends the inclusion of other relevant emitters such as air traffic or chemical industry. Also the inclusion of other gases beside CO_2 (e.g. N_2O) should be considered. In terms of an efficient use of resources the ACA appreciates the exemption of plants with insignificant emissions aspired by the European Union. For these small plants not any longer covered by - and for plants generally not included in - the ETS, alternative control measures should be taken.

NATIONAL ALLOCATION PLANS – FIRST PERIOD 2005 – 2007 (NAP 1)

7.1. In the first period all EA were allocated free of charge, no EA were auctioned. The allocation of the EA to every single plant was carried out by using a complex model in which historic CO_2 emissions, branch specific growth rates, sectional reduction contributions and the plant specific reduction potential were considered.

In the first period the EU member states altogether allocated a surplus of 171 million EA compared to the demand to cover actual emissions. In Austria there was almost a match of allocated EA and emissions regarding both sectors – industry and energy production - together. The emissions caused by energy production were covered by allocated EA by little less than 90 %, the emissions of the industry sector were significantly lower than the EA allocated for the sector.

As a result of the excess supply on the European level the price for one EA fell from over 20 down to 0,07 EUR in October 2007. There was no incentive for plant operators to reduce emissions. The low prize for EA caused little additional costs for those plant operators forced to buy EA. There was no incentive to reduce emissions.

7.2. The ACA honours the efforts of the Austrian Federal Ministry of Environment to organize the allocation process in an objective and transparent manner. In its opinion the emission reduction potential of every specific plant was weighted too little in the first period. To achieve an allocation as appropriate as possible different states of art of the plants should increasingly be considered ("benchmarking").

From the point of view of the ACA the presetting of the European Commission for the preparation of the national allocation plans were insufficient in the first period. This resulted in comparable plants getting different amounts of EA free of charge in different countries. Actual effects of market distortion nevertheless were negligible according to the excess supply of EA in the first period.

NATIONAL ALLOCATION PLANS – SECOND PERIOD 2008 – 2012 (NAP 2)

8.1. The original allocation plan for the second period delivered to the European Commission by Austria provided an overall allocation of 32.8 million EA per year. The European Commission rejected the plan and demanded a reduction to annually 30.7 million EA, 1.3 % of which will be auctioned. In the allocation process the sort of fuel applied for energy production was increasingly considered. For the plants of the energy production sector a benchmarking approach was chosen.

To consider new ETS participants (plants opening during the period) a fixed reserve of 1 % of the total amount of EA was created. In case that this reserve is insufficient a unit assigned for this purpose will buy the needed EA and will provide them to the new ETS participant free of charge (flexible reserve). In the third period the equivalent amount of EA will be allocated free of charge to the assigned unit in return from the reserve for this period.

8.2. The ACA expects that especially the energy production sector will be forced to buy a significant amount of EA on the market, as allocated EA were reduced by 20 %. The reduction in allocation corresponded to the approach chosen also in other Member States of the EU (e.g. Germany).

The ACA supports the increased weighting of output specific parameters in the allocation process. The flexible reserve constitutes an anticipation of the following ETS period with the effect that an EA quantity additionally

reduced will be available related to the general decrease from one period to the next. The ACA states that the flexible reserve might cause a significant financial disadvantage for plant operators in the third period.

EMISSION MONITORING

9.1. Every emission report had to be checked by an independent certified auditor prior to submission to the Federal Ministry of Environment. The Ministry optionally checked the report in case of well-founded doubt. To evaluate the system a random sample of the reports from 2005 and 2006 was checked by the Austrian Environmental Agency. The quality of reports significantly improved from 2005 to 2006, the share of reports with well founded doubt and the extent of necessary report modifications significantly decreased.

9.2. The check of the emission reports considerably improved monitoring methods and contributed to the reliability of the emission reports.

COSTS OF THE ETS

10.1. For the ETS costs incur for the allocation process, for the authorization and monitoring of emissions, for the installation and operation of the emission trading registry and for the contacts to the European Commission. Including the allocation for the second period costs of approx. 1.95 million EUR incurred for Austria at the federal level from 2004 to 2007.

Unlike in other European countries Austrian plant operators bore the costs for the emission trading registry by paying user fees. The plant operators also paid for the emission monitoring and for the verification of the emission reports.

10.2. For the ACA the bearing of costs by the plant operators represented an implementation of the polluter pays principle.

BENEFITS AND TARGET ACHIEVEMENT

11.1. The main objectives of the ETS are establishing of a quantitative upper limit for greenhouse gas emissions and making a contribution to the achievement of the national Kyoto target.

11.2. The ACA states that the Austrian ETS was successfully established. The objective to reduce emissions was not achieved in the first period because of the oversupply of EA available on the market. The adaptation of the Austrian Climate Strategy 2007 set targets for the sectors energy production and industry, which approximately correspond to the emissions in 1990. The allocation of the second period therefore complies with the objective of emission stabilization. But even this shortage makes the sector targets of the Climate Strategy unlikely to be achieved, as emissions from industrial plants not covered by the ETS are rising significantly.

Czech Republic

SUMMARY OF THE AUDIT REPORT OF THE SUPREME AUDIT OFFICE, CZECH REPUBLIC ON FINANCIAL MEANS EXPENDED ON AIR QUALITY PROTECTION

COORDINATED AUDIT OF AIR AND OZONE LAYER PROTECTION AND IMPLEMENTATION OF RELATED INTERNATIONAL AGREEMENTS

Introduction The audit was listed in the audit plan of the Supreme Audit Office (SAO) for 2007 under number 07/02. The aim of the audit was to check the management of finances levied and used in the field of air protection. The audited period were the years 2003 to 2006; in case of factual connections, the preceding and/or subsequent periods were also scrutinised. The audited entities were: Ministry of the Environment (MoE); State Environmental Fund of the Czech Republic (SEF); Czech Environmental Inspectorate (CEI); selected regions and selected recipients of financial means from SEF.

I. IMPLEMENTATION OF INTERNATIONAL TREATIES, COMMUNITY LAW AND FULFILLMENT OF LIMITS AND TARGETS

1. AIR POLLUTION

1.1. Convention on Long-range Transboundary Air Pollution (CLRTAP), attached protocols and related Community law

The Convention entered into force for former Czechoslovakia in 1984. It is a framework convention and a number of obligations are rather general in nature. The parties undertake to pursue policies and strategies to combat the discharge of air pollutants; they are to exchange information and review measures to combat the discharge of air pollutants. The Convention focuses on reducing emissions[41] of pollutants, taking into consideration technical and economic feasibility and the impact on the environment, with a view to reducing long-range transboundary air pollution.

The Convention was followed up by eight protocols focusing on the monitoring and valuation of long-range transmission of pollutants, the reduction of emissions of sulphur and nitrogen oxides, volatile organic compounds (VOC), heavy metals and persistent organic pollutants. The protocols were implemented into national regulations.

The most recent – the Gothenburg Protocol – was concluded in 1999; the Czech Republic ratified it in 2004, and it entered into force in 2005. Its objective is to restrict emissions of sulphur oxides, nitrogen oxides (NOx), NH_3 and VOC which are the result of human activity and which, after long-range transmission, have a negative effect on human health and natural ecosystems. The principal means of achieving this goal is setting national emission ceilings for these substances. The Gothenburg Protocol's national emission ceilings were applied by the Government in advance in its Order No. 351/2002 Coll., setting forth mandatory emission ceilings for

41. Emission means the discharge of substances into the air expressed in units of mass.

certain air pollutants and preparation methods and performance of emission inventories and emission projections, in the wording as effective until 9 December 2003. The up-to-date emission inventories and emission projections indicate that the Czech Republic is implementing its commitments and that its commitments can also be expected to be fulfilled in the target year 2010.

In connection with the Czech Republic's accession to the European Union (EU), the Government adopted Order No. 417/2003 Coll., amending Government Order No. 351/2002 Coll. and implementing Directive 2001/81/EEC of the European Parliament (EP) and the Council on national emission ceilings for SO_2, NOx, VOC and NH3 up to 2010. Implementing the commitments is one of the fundamental goals of the Integrated National Emission Reduction Program of the Czech Republic and is also a part of the National Program for Reduction of Emissions of the Czech Republic. ***MoE documented that the Czech Republic is implementing the Convention's framework tasks, fulfilling commitments of all the protocols and the requirements of the directive.***

1.2. Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management

The directive was implemented into national legislation by Act No. 86/2002 Coll., on air protection and amen ding some other laws (the Air Protection Act) and by its amendment - Act No. 92/2004 Coll. and by Government Order No. 597/2006 Coll., on air quality monitoring and assessment. In the case of this directive, monitoring found out that the conditions laid out therein were not being met. It was stated that the failure to implement obligations dates back to 1 January 2005; discharges exceeding limit values of certain pollutants in ambient air are monitored and duly reported in line with the procedures required by Council Directive 96/62/EC.

In the territory of the Czech Republic this monitoring detects exceeding of thresholds of certain pollutants, specifically PM 10[42] particles and benzo(a)pyrene. MoE paid suitable attention to the problem of excess levels of certain pollutants in the air and approaches to tackle them are a priority in conceptual documents.

1.3. Directive 2001/80/EC of the EP and of the Council of the 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants

The directive was implemented by Government Order No. 112/2004 Coll., on national program for reduction of emissions of solid pollutants, sulphur dioxide and nitrogen oxides from existing particularly large combustion stationary sources of air pollution. This government order lays down SO_2 emission ceilings for individual particularly large sources. It also defines regional emission ceilings for solid pollutants, SO_2 and NOx. The order also defines emission ceilings for solid pollutants, SO_2 and NOx of particularly large combustion plants for the Czech Republic as a whole. The regions issue decisions instructing individual operators to comply with the emission ceilings restrictions in the form of emissions reduction plans. The drafting and implementation of these plans and the duty to comply with emission limits are the key instruments of this national program.

SO_2 emission ceilings for particularly large combustion plants will be in effect from 1 January 2008. MoE documented that at the time of the SAO audit it was drawing up an estimate of future compliance with emission ceilings. This estimate is based on an assessment of updated emission projections that operators were obliged to submit to the regions by 30 June 2007 under a decision on approval of emission reduction plans.

2. CLIMATE PROTECTION - UN FRAMEWORK CONVENTION ON CLIMATE CHANGE AND KYOTO PROTOCOL TO THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE

The Convention focuses on the monitoring and reduction of greenhouse gas emissions, in particular CO_2, and the Czech Republic acceded to it in 1993. The Convention's aim is to put in place the right conditions for the rapid stabilization of the concentration of greenhouse gases in the atmosphere at a level that would prevent

42. PM 10 are particles that are defined in Government Order No. 350/2002 Coll., defining limits for concentration of pollutants in ambient air and the conditions and manner of monitoring, judging, assessing and managing air quality.

dangerous anthropogenic interference with the climate system. In 2001 the Czech Republic already ratified the Kyoto Protocol to the UN Framework Convention on Climate Change, which aimed, for the first 2008 – 2012 "commitment period", to reduce greenhouse gas emissions by 8% compared to 1990 levels.

On 25 April 2002 the Council adopted Decision 2002/358/EC concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the UN Framework Convention on Climate Change and the joint fulfilment of commitments thereunder. In line with this decision, the Commission adopted Decision 2006/944/EC of 14 December 2006 determining the respective emission levels allocated to the Community and each of its Member States under the Kyoto Protocol pursuant to Council Decision 2002/358/EC. This ceiling is a realistic target for the Czech Republic, as, according to the 2004 inventory, the total quantity of the Czech Republic's emissions converted to CO_2 was approx. 147 million tons, whilst the average annual limit in the Community decisions is greater than 180 million tons in the years 2008-2012.

Total greenhouse gas emissions in the Czech Republic fell by 27.5% from 1990 to 2005. The development of emissions indicates that the stabilization trend will continue and total greenhouse gas emissions in the 2008 – 2012 period should be more than one third lower than in 1990. ***It is therefore reasonable to assume that the Czech Republic will meet its national reduction target of 8%.*** Nevertheless, indicators correlating aggregated emissions to population size or unit of gross domestic product (GDP) remain very unfavourable for the Czech Republic, despite the mentioned fall in emissions since 1990.

3. PROTECTION OF THE OZONE LAYER

The Czech Republic is a state signatory of the Montreal Protocol on Substances that Deplete the Ozone Layer from 1987 and all its amendments. Obligations when handling substances that deplete the ozone layer (regulated substances) are also set out by Regulation 2037/2000/EC of the EP and of the Council of 29 June 2000 on controls of ozone-depleting substances, as amended by Regulations 2038/2000/EC and 2039/2000/EC of the EP and of the Council of 28 September 2000. In the Czech Republic this area is governed mainly by the Air Protection Act. Government Order No. 117/2005 Coll., on some measures for the protection of the ozone layer, is this act's implementing regulation in the matter of the ozone layer protection.

Obligations and bans established by the air protection act are checked mainly by CEI, which may also impose measures and penalties. The SAO's audit at CEI found out that it was fulfilling its obligations. Any air protection authority mentioned in the Air Protection Act may seize regulated substances or products containing them. A penalty was not imposed by either CEI or MoE in the audited period.

The SAO's audit of SEF found out that it spent a total of CZK 106.8 million on protection of the ozone layer in the years 2003 – 2005, mainly in the form of subsidies.
That represented 0.2% - 2.0% of all SEF expenditures in individual years; 21 projects were supported.

The documents presented by MoE for the audit indicate that the Czech Republic is fulfilling the requirements of both the Montreal Protocol and Community law on the ozone layer protection.

II. SYSTEM OF RESPONSIBILITIES AND OBLIGATIONS IMPLEMENTED TO NATIONAL CONDITIONS – MEASURES, NATIONAL STRATEGIES AND ACTION PROGRAMS

1. THE STATE ENVIRONMENTAL POLICY OF THE CZECH REPUBLIC (SEP)

SEP was approved by Government Resolution No. 235 of 17 March 2004. The assessment of SEP submitted by MoE as of 30 June 2007 was done in the form of showing different indicators and their development. Air quality indicators show different developments depending on what they are related to. Whereas CO_2 and NOx emissions have developed positively relative to GDP and domestic consumption of primary energy sources, they have not improved in relation to population size or territorial unit. ***One explanation for this stagnation***

is the considerable amount of electricity generated for export. Although the monitored indicators do not cover all important problems, e.g. that a considerable part of the population suffers from excess concentrations of certain pollutants in the air, in MoE's opinion SEP is expected to remain the fundamental policy document until 2010 as planned.

The pace of environmental improvement slowed down in the period under scrutiny. That is largely due to strong economic growth that is not accompanied by reductions in energy and material consumption.

2. INTEGRATED NATIONAL EMISSION REDUCTION PROGRAM OF THE CZECH REPUBLIC

The Program was approved by Government Resolution No. 454 of 12 May 2004 and MoE updated it in 2005. It can be regarded as a specific Program with goals that can be assessed, especially where the limits, ceilings and time limits are set down in legislation. The most important instrument for improving macro emission and also ambient air quality indicators are normative, legislative measures. Additionally, the Program contains a number of other instruments, including economic ones. The Program focuses on all pollutants for which national legislation sets emission ceilings or limit values in the ambient air (SO_2, NOx, NH_3, CO, Pb, Cd, Ni, As, Hg, VOC, benzene, polycyclic aromatic hydrocarbons) and also covers greenhouse gases.

MoE presented materials containing assessments of implementation of the department's tasks and the Program's objectives in individual years; ***the vast majority of tasks had been performed and the achievement rate of objectives was developing positively. The Program presented an optimistic assessment of the development of the emission situation from 1990 to 2003 – it is certain or at least highly probable that the emission ceilings for SO_2, VOC and NH3 laid down by the protocols to the Convention (CLRTAP) in particular and by Community law should be met by 2010.*** According to the Program, however, there was a high risk that the national NOx emission ceiling would not be achieved; there were also problems indicated in exceeding NOx limit values in ambient air.

3. NATIONAL PROGRAM FOR REDUCTION OF EMISSIONS OF THE CZECH REPUBLIC

The Program was approved by Government Resolution No. 630 of 11 June 2007, replacing the Integrated National Emission Reduction Program of the Czech Republic which had been valid for around three years. Although it adopted some of the previous program's conclusions, parts assessing the current state of affairs are highly critical – it states, for example, that after a significant reduction emissions are now stagnating (but not overstepping the defined ceilings) and air quality is if anything getting worse. Instead of talking about reducing emissions, it is now a question of stopping the increase in air pollution. The Program's "global goal" is to reduce the presence of substances damaging ecosystems and human health in the environment. Besides the meeting of emission ceilings for the basic substances, "other goals" focus on compliance with the defined limits of pollutants in ambient air, in particular PM 10 particles and benzo(a)pyrene. Accordingly, the Program monitors quantitative emission and ambient air quality indicators. Emission indicators have a target set in 2010 and ambient air quality indicators in 2015. ***The National Program for Reduction of Emissions of the Czech Republic can be regarded as a document with clearly defined goals and timed activities. It contributes to the protection of ecosystems and, most importantly, is in line with the population's interest in improving quality of life.***

4. REGIONAL EMISSION REDUCTION AND AIR QUALITY IMPROVEMENT PROGRAMS

The obligation to draw up regional (local) emission reduction programs and regional (local) air quality improvement programs is set down in the Air Protection Act as a significant means to achieve emission and ambient air quality targets and at the same time as an application of decision-making process at the local level. MoE drew up and published methodological instructions for preparation of programs and instructions to support the air protection authorities responsible for these programs. MoE also methodologically managed

the preparation of emission reduction plans and plans for the introduction of good agricultural practice. During the second half of 2004, MoE commissioned an external assessment of regional emission reduction programs and territorial energy policy. Among other things, it was found out that although the regional programs and territorial policies concurred in their general goals, the specific measures and targets were not aligned with other policies and programs. ***Most programs and policies lacked specific measures and instruments for achieving the identified goals.*** If any instruments were proposed, there was no way of assessing whether these will result in achieving goals in an effective and efficient way. The incurred costs were not quantified – it was not possible to assess whether the proposed goals were achievable. Based on this assessment of regional programs MoE took steps to remedy their shortcomings. Above all, an amendment of the Air Protection Act made it obligatory to draw up program annexes containing specific measures as a part of the programs. Additionally, the regions could make use of other methodological materials prepared by MoE when updating their programs. In the future, SEF projects that will be supported should chiefly be those that are part of or in line with regional programs.

5. NATIONAL PROGRAM TO MITIGATE THE IMPACTS OF CLIMATE CHANGE IN THE CZECH REPUBLIC

The Program was approved by Government Resolution No. 187 of 3 March 2004 and is the updated Strategy of the Protection of the Climate System of the Earth in the Czech Republic. The purpose of the Program is to identify ecologically and financially acceptable measures to reduce greenhouse gas emissions to ensure that the Kyoto Protocol reduction targets are met. Another formulation of the Program's goals is that by 2020 all emissions and energy indicators will be stabilized at the average EU levels in the year 2000, whereby the gradual approximation to the EU level will take place so that most of these targets are achieved in 2012.

Energy, or rather the public energy sector, accounts for approx. 65% of all greenhouse gas emissions in the Czech Republic divided among production sectors, 68% of which is emissions caused by electricity generation. When setting measures for achieving the reduction targets in the National Program to Mitigate the Impacts of Climate Change in the Czech Republic the priority is to reduce energy intensiveness in the area of Czech production and consumption. The Program does nothing to reduce the high proportion of greenhouse gas emissions accounted for by electricity generation for export, even though the ratio between export and domestic electricity consumption was approx. 1:3.6 in 2004. Reducing emissions from electricity generating sources is not realistic unless it is accompanied by a corresponding adjustment of emission ceilings linked to the proportion of electricity generated for export.

III. EMISSION TRADING SYSTEM

1. DIRECTIVE 2003/87/EC OF THE EP AND OF THE COUNCIL OF 13 OCTOBER 2003 ESTABLISHING A SCHEME FOR GREENHOUSE GAS EMISSION ALLOWANCE TRADING WITHIN THE COMMUNITY AND AMENDING COUNCIL DIRECTIVE 96/61/EC

Greenhouse gas emission allowance trading is one of the mechanisms the European Community created to make good its commitment to reduce greenhouse gas emissions within the framework of the Kyoto Protocol. It is based on the concept of tradable CO_2 allowances allocated by the state to significant greenhouse gas generators. Act No. 695/2004 Coll., on the conditions of greenhouse gas emission allowance trading and amending certain laws, and Government Order No. 315/2005 Coll., on the National Allocation Plan of the Czech Republic for the Years 2005 to 2007, regulate this issue in the conditions of the Czech Republic.

2. NATIONAL ALLOCATION PLANS – GREENHOUSE GAS EMISSION ALLOWANCES

MoE is responsible for preparation of national allocations plans (NAP). A working group, made up from representatives of MoE, Ministry of Industry and Trade and their organizations and industrial associations representing businesses in all key sectors concerned, was set up in 2003 to prepare the first NAP for the first

trading period 2005-2007. The key materials, NAP 1 was based on, were data on emission sources from the register of emissions and sources of pollution kept by the Czech Hydrometeorological Institute and data on greenhouse gas emissions in the years 1999 – 2001 provided by individual businesses. The European Commission defined an emission ceiling of 97.6 million tons of CO_2 per year for the Czech Republic for the first trading period (so-called allocation). NAP 1 divided allowances worth a total of approx. 91.4 million tons of CO_2 per year among companies classified by sectors. In line with Act No. 695/2004 Coll., MoE entrusted a joint stock company called Operátor trhu s elektřinou, a.s. (Energy Market Operator) with the duty to establish and operate allowance trading register.
The SAO audit found out that no sector attained the basic allowance allocation in 2005; the sectors' total emissions were reported at 82.5 million tons of CO_2 in 2005 and 83.6 million tons of CO_2 in 2006. Additionally, differences were found from sector to sector as regards the basic allocation's conformity to the reported and verified actual state in 2005.

The original NAP 2 proposal for the 2008 – 2012 period – with an allocation of 101.9 million tons of CO_2 per year for the Czech Republic (increase of 3.4% when compared to NAP 1) – that was submitted to the Government by MoE - was approved by Government Resolution No. 1400 of 6 December 2006. The entire increase in CO_2 emission allowances from NAP 1 to the proposed NAP 2 and a part of the unused quantities in certain sectors were intended to cover the increase in the basic allowance allocation for the public energy sector in particular. This increased allocation was not supported by the corresponding expected growth in this sector. This proposed NAP 2 was not accepted by the Commission, which decided that the Czech Republic's annual allocation would be at most 86.8 million tons.

MoE subsequently drew up a new version of NAP 2 based on the allocation defined by the Commission. In this version of NAP 2 the allocation is no longer divided up among sectors but among emission originators, with the 2005 and 2006 averages used as the basic criterion. Compared to the first version of NAP 2, the allocation for individual plants in the second version is more transparent and particular sectors are not favoured.

IV. FINANCING AIR PROTECTION – THE USE OF PUBLIC FINANCING

1. THE USE OF STATE AND REGIONAL BUDGET FINANCES

MoE is totally unable to influence expenditures on air protection reported in other state budget chapters in the framework of program financing expenditures. In the years 2003 – 2005 the environmental yearbook reported expenditures on air protection at approx. CZK 140 to 250 million per year (source: Ministry of Finance). MoE possesses no data as to what sums are spent on air quality protection from the state budget chapters other than its own and as to what programs or projects spending on air protection it is reported under.

The situation is the same with regional budgets, where spending of approx. CZK 230 to 330 million yearly was reported in the same period. MoE documented that it methodologically manages and guides the preparation of programs drawn up by the regions to reduce emissions and improve air quality. As part of this methodological work it had recommended specific goals, from which the regions selected specific projects and measures for financial support.

2. THE USE OF SEF FINANCES

As the administrator of SEF, MoE was responsible for formulating programs through which SEF supported air protection projects. In the years 2003 – 2006 the total SEF expenditure on air protection amounted to CZK 3,222 million, gradually falling from CZK 1,115 million to CZK 403 million (with the share of total expenditure falling from approx. 24% to 16%).

SEF supported a total of 1,396 air protection projects in the 2003 – 2006 period. For the execution period as a whole, a total of approx. CZK 4,580 million was spent on support of these projects. In addition, loans worth a total of approx. CZK 851 million were provided to different recipients; support of some projects is still on-

going. A sample of 60 projects was audited at SEF. Among other things, the audit found shortcomings in the way how eligible costs were defined and checked, in ambiguous definitions of some of the supported projects' parameters and in that documents linked to paid invoices were insufficiently checked by SEF.

The most important program in terms of the number of projects and level of support was the Program of Development of Infrastructure in Small Municipalities for full gasification of municipalities or parts thereof. 823 projects were supported in the period under scrutiny. Support of these projects amounted to approx. CZK 3.2 billion in total, which is 84% of total support towards air protection.

SEF presents ecological effects in its financial reports and annual reports that are based solely on documentation provided by the beneficiaries and on presumptions that can justifiably be questioned. SEF tolerates the fact that data on energy audits are not duly documented in applications (it accepts, for example, a declaration by municipality representatives) and that pre-gasification solid fuel consumption levels, which are cited as a yardstick for measuring environmental benefit, are evidently exaggerated. The specific financial cost/benefit of the project is thus also distorted. The basic criterion for SEF is the number of connections, in other words consumers, and the assessment of environmental effect is thus based on the flawed assumption that all consumers will immediately and fully switch to gas for heating and hot water. However, given the price of gas some consumers only occasionally use gas for heating.
The actual gas consumption in the concerned municipalities or parts of municipalities reveals that calculating the reduction in emissions solely on the basis of the number of people connected to the gas main is not objective.

Actual gas consumption is then merely a fraction of the calculated consumption of gas as cited in both the energy audits and the final assessment of projects done by SEF. The audit found out that a municipality's gas consumption in the first year and second year after completion of the project was approx. 9% and 11% respectively of the figures cited in the assessment based on the municipality's declaration. In the same period after full gasification, another municipality consumed approx. 9% and 15% respectively of the natural gas that was mentioned in the energy audit. Under the funding agreement the association of municipalities was supposed to build 1,249 connections; in fact it completed 1,012, and approx. 2.5 years after building approval there were only 310 active consumers. In the first year after building approval was granted (excluding one municipality not yet connected) the actual gas consumption there was only around 2% of the figure given in the energy audit. In the case of another association of municipalities, gas consumption in the fifth year after the project was completed was approx. 20% of the level cited in the energy audit. By these standards, a municipality that in the third year after the project completion achieved approx. 23% of the gas given in the energy audit can be regarded as a success.

In at least 7 of the 14 full gasification projects audited, the project was overvalued in the case of inputs and undervalued in the case of outputs. The figures used to calculate the absolute reduction in annual emissions of basic pollutants before and after gasification were not mutually comparable. For these reasons in particular, both the energy audits and the expertise that in many cases concur with them are not objective and are overvalued, both in applications and in assessments of completed projects.

SEF documented that it assesses projects carefully when applications are submitted. The calculation models used to assess air protection projects during the audited period underwent a development and were made more precise. If the emission parameters in the SEF's control calculation differed from the applicant's figures by more than 20%, the application was deemed unsatisfactory. Even so, as the gas consumption shows, there are significant differences between the calculations and the actual state.

However, the ecological effects calculated solely in terms of the number of consumers were not achieved either. In 2004, for example, support was definitively granted to 235 projects; according to SEF the support beneficiaries did not achieve the ecological effects in 146 cases (62.1%).

The Minister of Environment empowered SEF to extend the contractual project completion deadlines by at most one year for ongoing projects where the beneficiary was not able to achieve the ecological benefits by the contractual deadline. The empowerment was gradually widened to cover all projects, with up to 3-year extensions possible. At the same time, the penalties for not achieving the ecological effect were gradually reduced. SEF could only demand that the support was returned if the attainment of the ecological effect was lower than 50%; if 50-60% of the target effect was achieved, SEF usually reduced the support by 10%. As a result the penalties were not proportionate to the degree of non-fulfilment, but rather they took into account the municipalities' actual ability to influence this fulfilment. This policy of SEF is justifiable, but it also suggests that the entire support program is not well constructed. The receipt of applications for support for full gasification was terminated in 2003.

The audit scrutinized 17 beneficiaries of investment support from SEF, which had obtained a total of CZK 184,058,036 for 19 projects by the time of the audit. The principal findings were in the area of public procurement - tenders for suppliers displayed a number of shortcomings; shortcomings were also found in beneficiaries' cooperation with suppliers, the conditions for inclusion in the full gasification program were not met. It was found out that some contracts were violated as regards the use of separate accounts – the beneficiaries thus made it harder to check whether the support finances were spent effectively. MoE merely presented the assessment of the program's results given in SEF annual reports. These assessments in reports intended for the public do not constitute the kind of analyses that could provide suggestions for correcting, broadening, or terminating funding programs. ***They do not reveal how effective they are as instruments for implementing the MoE's air protection policy.***

3. FINANCING PROJECTS RELATED TO THE IMPROVEMENT OF AIR QUALITY FROM EU FUNDS

At the time of the SAO audit, MoE and SEF were preparing an Operational Program Environment, which is designed to use finances from the EU structural funds in the 2007 – 2013 period. This program will enable substantially more funds to be used on air protection than what was provided in the years 2003 – 2006. It will also be possible to support measures equivalent to the previous full gasification programs out of these structural funds.

MoE documented that it had adopted measures designed, in particular, to specify the conditions for selecting supported projects (link to regional and local programs) and to improve the quality of these projects. Documents of the Operational Program Environment ***do not address a fundamental problem – failure to achieve the envisaged ecological effects due to reduced public interest in gas heating as a result of the high price of gas.***

Slovak Republic

SUMMARY OF THE AUDIT REPORT OF THE SUPREME AUDIT OFFICE OF THE SLOVAK REPUBLIC ON MANAGEMENT AND UTILIZATION OF STATE FINANCIAL MEANS ALLOTTED FOR AIR AND OZONE LAYER PROTECTION AND IMPLEMENTATION OF RELATED INTERNATIONAL AGREEMENTS

COORDINATED AUDIT OF AIR AND OZONE LAYER PROTECTION AND IMPLEMENTATION OF RELATED INTERNATIONAL AGREEMENTS

1. INTRODUCTION

The audit mission was to verify the adherence to legal regulations in the course of use of the state budget funds allotted for air and ozone layer protection and execution of international obligations.

The audit period addressed the years 2005 and 2006.

The Supreme Audit Office of the Slovak Republic (hereinafter referred to as SAO SR) ***carried out the audit in the following auditees:***

- Ministry of Environment of the Slovak Republic (hereinafter referred to as ME SR)[43]
- Slovak Inspectorate of Environment (hereinafter referred to as SIE)[44]
- Environmental Fund (hereinafter referred to as EF)[45]
- Slovak Hydrometeorological Institute (hereinafter referred to as SHI)[46]

2. INTERNATIONAL OBLIGATIONS OF THE SLOVAK REPUBLIC IN THE FIELD OF AIR AND OZONE LAYER PROTECTION AND THEIR FULFILLMENT, MEETING THE RELATED LIMITS AND TARGETS

1. Convention on Long-range Transboundary Air Pollution
2. Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol
3. United Nation Framework Convention on Climate Change and Kyoto Protocol
4. EU directives relating to air protection

2.1. Convention on Long-range Transboundary Air Pollution

The Convention on Long-range Transboundary Air Pollution (hereinafter referred to as CLRTAP) was signed in Geneva in 1979 and has been amended by eight protocols.

The Slovak Republic (hereinafter may be referred to as SR) adopted CLRTAP on May 28, 1993. In compliance with CLRTAP and its protocols, SR is obliged to submit the results of emission inventory on selected air pollutants. The emissions are processed on the nationwide level in cooperation with external experts. Activities (amount of production) for the emission calculation are conciliated directly from the NEIS database (National Emission Inventory System) from operators or from the waste database.

2.2. Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol

The Vienna Convention for the Protection of the Ozone Layer (hereinafter referred to as Vienna Convention) assigned general measures on ozone layer protection to be undertaken by its signatory parties. This document entered into force for SR on January 1, 1993.

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43. is a state authority responsible for formulation of national policy in the field of air and ozone layer protection; development of strategic documents and legal instruments on their implementation is in its competence

44. is a specialized supervisory authority providing the state supervision and imposing fines on the matters concerning environment protection and carrying out the municipal administration in the field of integrated prevention and control on matters concerning environmental pollution

45. is an autonomous corporate body governed by ME SR; established to carry out state assistance in the field of environment protection; main source of its income: fees, fines and penalties for environmental pollution; allocation and use of its funds has to be in compliance with priorities and objectives of the state environmental policy strategy approved by the Government of the Slovak Republic

46. is an allowance organization of the ME SR; provides climate and meteorological information on quality of environment; responsible for evaluating and monitoring quality of environment

Vienna Convention has been followed by the Montreal Protocol on Substances that Deplete the Ozone Layer and its five amendments.

SR does not produce any of the regulated substances nor products manufactured or operated by any of the regulated substances.

- Fully halogenated chlorofluorocarbons (CFCs) – consumption has been eliminated since January 1, 1996. The use is possible only in compliance with the valid exemption concerning laboratory and analytical purposes.
- Halons – can be found in existing fire protection systems, fire extinguishers and fire equipment in accordance with the allowed exemption for the critical use of halons in sectors where no adequate alternative exists so far (aviation, army, petrochemical sector). In SR there are about 1,578 kg of halons in fire extinguishers for critical use purposes. The use in other cases has been eliminated since January 1, 1994.
- Methyl bromide – the use has been prohibited by the Act No. 76/1998 Coll. on ozone layer protection as amended (hereinafter referred to as Ozone Layer Protection Act) since January 1, 2001. SR was among the first countries to eliminate its use in 1999 (the Regulation 2037/2000/EC of the European Parliament and of the Council on controls of ozone-depleting substances – hereinafter referred to as Regulation 2037/2000/EC – stipulates the prohibition term since January 1, 2005).
- In addition, in 2006 SR eliminated the use of inhalants containing fully halogenated CFCs for asthmatics.

SR annually submits the respective reports to the European Commission in compliance with the Regulation 2037/2000/EC. The report was sent by SR on July 11, 2006.

2.3. United Nation Framework Convention on Climate Change and Kyoto Protocol

The United Nation Framework Convention on Climate Change (hereinafter referred to as UNFCCC) was adopted in 1992 with the aim to stabilize atmospheric concentration of greenhouse gases (GHGs) to a save level. Currently, there are 185 countries or international communities that are parties to UNFCCC. In 1997 the parties of UNFCCC agreed to endorse the Kyoto Protocol (hereinafter referred to as KP) that defined the reduction objectives and instruments to achieve them. SR committed to an 8% reduction of GHG emissions compared to the base year 1990 in the period 2008 – 2012.

UNFCCC entered into force for SR on November 23, 1994. SR ratified KP in 2002 and it entered into force on February 16, 2005. The legislative measures that led to the reduction or contain potential to lead to the reduction of GHG emissions were taken, e.g. acts on air protection, on emission trading, on environmental fund, on energy, on regulation in energy sector, etc.

The National Focal Point (hereinafter referred to as NFP) at ME SR is the key expert and legal guarantor for the achievement of commitments and requirements of UNFCCC and KP.

2.4. Implementation of EU Directives Relating to Air Protection

1. Council Directive 96/62/EC of 27 Sept. 1996 on ambient air quality assessment and management;
2. Council Directive 1999/30/EC of 22 Apr. 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air;
3. Directive 2000/69/EC of the European Parliament and of the Council of 16 Nov. 2000 relating to limit values for benzene and carbon monoxide in ambient air;
4. Directive 2002/3/EC of the European Parliament and of the Council of 12 Feb. 2002 relating to ozone and ambient air;
5. Directive 2004/107/EC of the European Parliament and of the Council of 15 Dec. 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.

- ***Full transposition*** of the directives in the points no. 1. – 4. was ensured by the Act No. 487/2002 Coll. on air protection as amended (hereinafter referred to as Air Protection Act) and ME SR Regulation No. 705/2002

Coll. on air quality and ME SR Regulation No. 408/2003 Coll. on emission and air quality monitoring.

- ***Directive 2004/107/EC – in the time of audit the transposition was in progress.***

Member States should have transposed the Directive by February 2, 2007. The amendment of the Air Protection Act transposing the Directive was adopted and published in the Collection of Laws under the number 203/2007. In addition, the Directive was transposed by the amendment of ME SR Regulation No. 705/2002 Coll. on air quality.

Shortcomings were detected mainly in:
- ***SR does not meet*** the limit values for PM10 particles and O3.
- National Monitoring Network on Air Quality is insufficient, SR does not monitor Hg, does not meet the requirements concerning the minimum number of monitoring stations in the respective areas and does not fulfill the conditions of data extraction.
- A proposed new directive restricts terms of meeting limit values and implements limit values on PM2.5. This directive requires extension of the monitoring program as well as performance of strict measures relating to air quality.

The commitments should have been implemented by the entrance of SR to the European Union (EU) and implementation of new commitments should have followed the schedules determined by the directives. SR fulfills this obligation partially.

Implementation of commitments relating to other directives
- ***Directive 2004/107/EC – in the time of audit the transposition was in progress.***

Member States should have transposed the Directive by February 2, 2007. The amendment of the Air Protection Act transposing the Directive was adopted and published in the Collection of Laws under the number 203/2007. In addition, the Directive was transposed by the amendment of ME SR Regulation No. 705/2002 Coll. on air quality.

Shortcomings were detected mainly in:
- ***SR does not meet*** the limit values for PM_{10} particles and O_3.
- National Monitoring Network on Air Quality is insufficient, SR does not monitor Hg, does not meet the requirements concerning the minimum number of monitoring stations in the respective areas and does not fulfill the conditions of data extraction.
- A proposed new directive restricts terms of meeting limit values and implements limit values on PM2.5. This directive requires extension of the monitoring program as well as performance of strict measures relating to air quality.

The commitments should have been implemented by the entrance of SR to the European Union (EU) and implementation of new commitments should have followed the schedules determined by the directives. ***SR fulfills this obligation partially.***

Implementation of commitments relating to other directives
- Directive 2001/80/EC of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from large combustion plants was fully transposed by the Air Protection Act and ME SR regulations No. 706/2002 Coll. and 408/2003 Coll.

SR fulfils main tasks and reports on the implementation of this Directive to the European Commission.

- Directive 2001/81/EC of the European Parliament and of the Council on national emission ceilings for certain atmospheric pollutants was fully transposed by the Air Protection Act and ME SR Regulation No. 131/2006 Coll.

SR fulfils main tasks; a national program to progressively reduce national emissions of the mentioned pollutants with the aim to reach national emission targets by 2010 at the latest was elaborated.

3. OBJECTIVES AND PRINCIPLES OF THE SLOVAK REPUBLIC IN THE FIELD OF AIR AND OZONE LAYER PROTECTION, IMPLEMENTATION OF THE INTERNATIONAL OBLIGATIONS TO NATIONAL CONDITIONS

The Slovak Government defined its priorities of environmental protection in the Manifesto of the Government of the Slovak Republic. Economic Strategy of the Slovak Republic presents the policy development for the period 2005 – 2013. The strategic goal for 2005 – 2013 is to ensure maximum economical growth under the conditions of sustainable development. The Environmental Policy, in which the main goal is achievement of high environmental quality and improvement of protection and utilization of natural resources and scenery, is a part of the Strategy.

Summary of commitments, targets and obligations of SR relating to CLRTAP and its protocols and their implementation.

In 2006 there were 5 stations of National Monitoring Network on Air Quality operating in the territory of SR, serving for monitoring regional air pollution. The measuring program of the stations has operated since 1978. SR met its targets to reduce European sulfur dioxide (SO_2) emissions by 30% compared to the year 1980 by the end of 1993. The actual reduction was at 61.06%.

The target to reduce national annual NO_x emissions or their transboundary effects (obligation – 197 thousand ton, actual amount – 134.696 thousand ton) was achieved. Unleaded fuel became available, thus operation of vehicles equipped by clarifiers was enabled. SR was the 4th country in Europe and 6th country in the world with implemented unleaded fuel.

The target to reduce SO_2 emissions by 60% in 2000, by 65% in 2005 and by 72% in 2010 – all compared to the year 1980 – in fact, SR reached the target of 2000 by 84.94%, the target of 2005 by 89.44% and the reduction by 72% in 2010 is real.

The target to eliminate and reduce national volatile organic compounds (VOC) emissions or their transboundary effects by minimum 30% in 1999 in reference to the base year 1988 was achieved in SR; the actual reduction was at 39%.

The target to reduce total annual emission of heavy metals (cadmium, lead, mercury) in ambient air compared to the year 1990 was achieved in SR.

The target to reduce SO_2 emissions by 80% in 2010, NO_x by 42%, ammonia (NH_3) by 37% and VOC by 6% compared to the year 1990 was reached; whereas the actual SO_2 reduction was at 83.08%, the actual NOx reduction was at 56%, the actual NO_3 reduction was at 58.57% and VOC at 42.20%.

Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol .
Slovak legislation stipulates substances that deplete the ozone layer in the Ozone Layer Protection Act and in ME SR Regulation No. 283/1998 Coll. on execution of the act on ozone layer protection. The amendment of the Ozone Layer Protection Act adopted in October 2000 meant a full transposition of the Regulation 2037/2000/EC of the EP and of the Council on controls of ozone-depleting substances, as amended by Regulations 2038/2000/EC and 2039/2000/EC of the EP and of the Council.

The Action Program of SR to Progressively Eliminate the Use of Substances that Deplete the Ozone Layer, which implementation was monitored and updated, was elaborated to ensure fulfillment of respective tasks and obligations. The 1st action program was prepared for the period 1996 – 2000. Following the 1st action

program, ME SR submitted to the Government a proposal of the new Action Program of SR to Eliminate the Consumption of Substances that Deplete the Ozone Layer in 2001 – 2008, which was approved by the Government in June 2001. At the same time, the Minister of Environment was assigned to report on the Action Program execution to the Government every two years and update and amend the Program when necessary.

United Nation Framework Convention on Climate Change and Kyoto Protocol .
The Strategy of SR to Achieve Commitments under the Kyoto Protocol is a comprehensive document that was adopted in 2002. It defines objectives to stabilize and reduce GHG emissions in three time horizons: short-term (by 2002), medium-term (2003 – 2007) aimed to reach the development of GHG emissions that would clearly allow to achieve the KP commitments and to complete the National Inventory System (hereinafter referred to as NIS) in compliance with Art. 5 KP and long-term (2008 – 2020) aimed to reduce GHG emissions in 2008 – 2012 by 8% compared to the year 1990, to establish prerequisites to reduce further in the second target period and to control the GHG emissions development so that stabilization after the year 2015 could be achieved gradually.

Following the Strategy, the proposal of the ***Action Plan of Fulfillment of the Kyoto Protocol Commitments of the UNFCCC*** has been developed, which has thoroughly analyzed direct and indirect measures in view of their GHG reduction potential, investment intensity and the time horizon to be implemented. These were mainly measures on the energy demand side and measures on the energy supply side.

4. FINANCING THE AIR PROTECTION, USE OF BUDGETARY MEANS, AUDIT FINDINGS

4.1. Use of Budgetary Means in 2005 – 2006

Within the subprogram "Air Protection," the budget for the year 2005 amounted to SKK 390,398 thousand, out of which SKK 100,000 thousand were allotted from the state budget, SKK 253,911 thousand were allotted from the European Regional Development Fund (hereinafter referred to as ERDF) and SKK 36,487 thousand were co-financed from the state budget. Total expenditures amounted to SKK 183,648 thousand, which represented 47% of the approved budget and, after the budgetary correction, 100% of the corrected subprogram budget.

Within the same subprogram, the budget for the year 2006 amounted to SKK 672,258 thousand. The budget after corrections amounted to SKK 860,652 thousand, out of which SKK 109,097 thousand were allotted from the state budget, SKK 324,303 thousand were the EU funds, SKK 169,576 were the government credits, SKK 71,287 thousand were co-financed from the state budget and SKK 186,390 thousand were allocated from the capitol General Cash Administration for ISPA co-financing. Total expenditures amounted to ***SKK 674,262 thousand,*** i.e. 78.34% of the corrected budget. Funds (ISPA) at the sum of ***SKK 186,390 thousand*** were allotted for the modernization of a heating plant in Zilina. The funds ***were not used*** as a tenderer had not been chosen in the public procurement process by the end of the year.

The EU funds were used for the improvement and development of infrastructure and air protection. ***In 2005 and 2006, 32 projects were approved, out of which 11 were physically and financially implemented. Total expenditures cumulated by December 31, 2006 – EU funds and state budget – were at the sum of SKK 574,928 thousand.***

4.2. Slovak Hydrometeorological Institute

Activities of SHI. Creation of the National Inventory System in compliance with Article 5 KP and Decision No. 19/CMP.1.
According to the Art. 5, par. 1 of KP, each Party included in Annex I of UNFCCC shall have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions (NIS) by sources and removals by sinks of all greenhouse gases not controlled by the Montreal

Protocol. According to the Decision 19/CMP, NIS should be designed and operated to ensure the transparency, consistency, comparability, completeness and accuracy of GHGs inventories. In addition, NIS should meet the quality requirements via planning, preparation and management of activities relating to the inventory, implementing uncertainty assessment and quality assurance / quality control (hereinafter referred to as QA/QC) activities. Characteristics, general and specific functions and principles are defined in the Decision 20/CP.7 and Decision 19/CMP.1.

The audit team detected that by December 31, 2006, ***NIS partially existed, QA/QC plan was only partially implemented within several sectors; however, institutional, legal and procedural framework was not adopted in full measure. The GHGs inventory process was not certified, accredited and QA/QC system for sector inventories as well as the overall inventory was not implemented.***

According to the Decision 19/CMP.1, „...each Party included in Annex I shall (a) designate a single national entity (SNE) with overall responsibility for the national inventory, (b) make available the postal and electronic addresses of SNE..“

The audit team detected that by December 31, 2006, ***SNE was not established.***
Its tasks were partially carried out by SHI in cooperation with NFP. SNE is a part of institutional framework established to provide input data and to report in compliance with the international conventions. It is formally connected to monitoring basic pollutants – NH_3, NMVOC, POPs, heavy metals and PM. ***The requirement to establish an independent working unit was not met at the time of audit. The establishment of a working group is regarded to be only a temporary solution.*** At the time of audit, a possible transition to an independent department within a new structure of SHI was envisioned. Material, technical and capacity issues (finances, technical equipment, human resources) remained unresolved.

Requirements to ensure and control the estimation of GHGs, including sinks are consistently covered by the Quality Management System (hereinafter referred to as QMS), applicable to the process as a whole as well as its particular components. The extent and requirements of QMS are currently defined, practical execution is anticipated after finalization of all necessary activities in the field of organizational provisions and data archiving system in individual IPCC sectors, including disclosure of information in compliance with 20/CP.7.

4.3 Environmental Fund

In 2005, EF received 1,294 applications for subsidies at the total sum SKK 7,072,551 thousand. 612 applications were successful and granted sum amounted to SKK 1,224,036 thousand. 86 applications were submitted on air and ozone layer protection, out of which 24 applications were successful and granted sum amounted to SKK 33,315 thousand (2.7% of total granted funds). 16 applications were verified by the audit team and it was detected that in three cases the original invoices submitted to EF were not in compliance with the Act No. 431/2002 Coll. on accountancy as amended (hereinafter referred to as Accountancy Act) and in one case the municipality did not act in compliance with the Act No. 523/2003 Coll. on public procurement as amended (hereinafter referred to as Public Procurement Act).

In 2006, EF received 1,255 applications for subsidies at the total sum SKK 6,583,402 thousand. In 2006, no applications for subsidies on credit were submitted. 591 applications were successful and granted sum amounted to SKK 1,469,764 thousand. 57 applications were submitted on air and ozone layer protection, out of which 12 applications were successful and granted sum amounted to SKK 12,500 thousand (0.9% of total granted funds). 7 applications were verified by the audit team and it was detected that in one case EF did not act in compliance with the Act No. 587/2004 Coll. on the environmental fund as amended, whereas EF did not verify completeness of the submitted application and funds were granted on the grounds of incomplete application. In one case an application was not accompanied by the tender documentation in compliance with the Public Procurement Act.

In 2005, EF carried out 5 audits on selected projects in the field of air and ozone layer protection, out of which 2 audits were planned (the subsidies were granted in the period 2002 – 2004) and 3 audits were unplanned. In 2006, EF carried out 3 audits on selected projects in the mentioned field, out of which 2 audits were planned (no infringements of contract conditions nor ineligible use of granted funds were detected).

4.4. Slovak Inspectorate of Environment – Activities in the Field of Air and Ozone Layer Protection

In 2005, air protection divisions of SIE (hereinafter referred to APDs) imposed 163 fines at the total sum SKK 4,594 thousand and in 2006 the number of imposed fines was 127 at the total sum SKK 2,622 thousand. In 2005, 135 imposed fines were reimbursed at the total sum SKK 3,668 thousand. In 2006, 115 imposed fines were reimbursed at the total sum SKK 2,294 thousand. SIE imposed corrective measures to correct shortcomings detected by its audits. In 2005, APDs imposed 154 measures and in 2006 129 measures.

Imposing fines and sanctions in compliance with the Air Protection Act.

In 2005, the highest fines were at the sum SKK 1,400 thousand for running an operating unit in conflict with the valid documentation, failing to meet defined emission limits, failing to perform imposed measures; and at the sum of SKK 250 thousand for failing to meet the emission limits. In only 4 cases out of 163 decisions, the sum of the fine exceeded SKK 100 thousand. The lowest fines were imposed in accordance with the Air Protection Act – in 46 cases SKK 10 thousand, in 34 cases SKK 5 thousand, in 18 cases SKK 15 thousand (out of all decisions in accordance with the Air Protection Act). In other 11 cases, the fine was lower than SKK 15 thousand – the lowest imposed fine amounted to SKK 1 thousand.

In 2006, the highest fines were at the sum SKK 200 thousand for failing to meet defined SO_2 emission limits; and at the sum SKK 125 thousand for failing to meet the emission limits and to perform imposed corrective measures. In only 4 cases out of 127 decisions, the sum of the fine exceeded SKK 100 thousand. The lowest fines were imposed in accordance with the Air Protection Act – in 36 cases SKK 10 thousand, in 22 cases SKK 5 thousand, in 14 cases SKK 15 thousand (out of all decisions in accordance with the Air Protection Act). In 6 cases, the fine was lower than SKK 15 thousand – the lowest imposed fine amounted to SKK 2 thousand.

In 2005, SIE initiated a new audit activity in compliance with the Ozone Layer Protection Act. The activity consisted of regulated substances (RS) sample withdrawal for the purposes of analysis. In 2005, 37 audits were carried out, aimed at the compliance with the Ozone Layer Protection Act. In 2006, 24 audits were carried out. In cases of audits aimed at the withdrawal of RS, 33 samples were withdrawn at operators.

In 2005, SIE carried out 37 audits in the field of air protection at operators handling with substances depleting the ozone layer and detected 6 legal infringements. 7 fines amounting to SKK 70 thousand were imposed due to the detected shortcomings and 4 corrective measures. In 2006, 24 audits were carried out and 3 legal infringements were detected. SIE imposed 8 fines amounting to SKK 38 thousand and 3 corrective measures.

5. EMISSION TRADING SYSTEM

Market mechanisms are one of the means to reach the UNFCCC and KP objectives. In 2003, EU adopted the Directive 2003/87/EC of the EP and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community, which established the European GHG Emission Trading Scheme. The transposition of the Directive was executed by the Act. No. 572/2004 Coll. on emission trading as amended (hereinafter referred to as Emission Trading Act). The scheme officially started to operate on January 1, 2005 and the first period lasts to December 31, 2007. Distribution of allowances is carried out in compliance with the national allocation plans (NAPs). National Emission Information System (NEIS) database, operated by SHI, served as the bases for individual allocation. Operators annually report on pollutants emissions. Final draft plan included 168 sources of emissions; the plan allocated 30,481,461 tons of CO_2 annually and the allowances for new sources of emissions amounted to 25,324 tons of CO_2 for the period 2005 – 2007 (NAP 1).

The allowances exist only as an electronic record in the National Register of GHG Allowances. Dexia Bank, a.s. acts as the administrator of the register (hereinafter referred to as Administrator). The operation of the register is stipulated in the Commission Regulation (EC) No. 2216/2004 for a standardized and secure system of registries pursuant to the Directive 2003/87/EC of the EP and Council and Decision No. 280/2004/EC of the EP and Council. The Slovak register was connected with EU Central Register on December 22, 2005 and started to operate on December 23, 2005. Reports for the years 2005 and 2006 were sent to the EC.

Emission Trading Act stipulates GHG emission trading in SR and EU, responsibilities of state authorities and the term of recording allocated allowances to the registry. The Administrator records the allowances to the register pursuant to the ME SR instructions annually by February 2.

- ***In 2005, allowances were transposed to operators on December 23, 2005.***

The register was prepared and passed the compatibility tests on connection with the Community Independent Transaction Log (CITL) by April 2005. The register was evaluated as prepared for operation. Negotiations with EC were held since June 2005, concerning the corrections of the national allocation plan for 2005 – 2007 (NAP 1). These negotiations were finished on December 20, 2005. Consecutively, allowances were transposed to operators amounting to one third of the total amount quoted in NAP 1, as adopted by the EC.

- ***In 2006, allowances were transposed to operators on February 28, 2006.***

Allowances were transposed to operators amounting to one third of the total amount quoted in NAP 1, as adopted by the EC.

6. CONCLUSION

SR is fulfilling its commitments relating to the international conventions in the area of air and ozone layer protection and there is the real presumption of their future implementation. Execution of measures taken to fulfill commitments relating to the international conventions will have impact on the amount of emissions. SR defined its priorities to reduce GHG emissions by 2020 in the "Strategy of SR to Achieve Commitments under the Kyoto Protocol". ***It is necessary to improve cooperation and communication among environment, energy and transportation with regard to the institutional cooperation.***

Environmental legislative and its fiscal instruments play an important role in assessment of possible emission development. The area of air and ozone layer protection is stipulated by the whole system of legal regulations in SR. The effects of legislative measures with direct or indirect impact on GHG emissions also played an important role.

Republic of Slovenia

SUMMARY OF THE AUDIT REPORT OF THE COURT OF AUDIT OF THE REPUBLIC OF SLOVENIA ON IMPLEMENTING MEASURES TO ACHIEVE SET OBJECTIVES FOR AIR AND OZONE LAYER PROTECTION AND TACKLING CLIMATE CHANGE

COORDINATED AUDIT OF AIR AND OZONE LAYER PROTECTION AND IMPLEMENTATION OF RELATED INTERNATIONAL AGREEMENTS

1.THE SUBJECT AND OBJECTIVES OF THE AUDIT

The Court of Audit of the Republic of Slovenia (hereinafter, the Court of Audit) performed an audit of achievement of objectives set to protect the air and the ozone layer and to tackle climate changes, determined by international agreements, the European Union directives and national policies. We determined whether the auditees successfully achieved the objectives set and whether they efficiently implemented the measures, which were planned so that the set objectives would have been achieved.

We verified if comprehensive policies were created and adopted in Slovenia, on the basis of which it will be possible to successfully achieve the objectives set. We also assessed, whether based on the projections of the emissions flows it will be possible to achieve the objectives set, to what extent the planned measures were implemented, and what are their effects.

The audit was performed at the auditees responsible for the achievement of set objectives and implementation of individual measures to protect the ambient air, the ozone layer and to mitigate climate change:

- Ministry of the Environment and Spatial Planning,
- Ministry of Agriculture, Forestry and Food,
- Ministry of Transport,
- Ministry of the Economy, and
- the Environmental Fund of the Republic of Slovenia (hereinafter, the Environmental Fund).

We audited performance of the auditees in the years 2005 and 2006 and took into consideration also all actions in 2007 and in the beginning of 2008, which affected the achievement of set objectives.

2. THE OBJECTIVES SET TO PROTECT AMBIENT AIR AND OZONE LAYER AND TO MITIGATE CLIMATE CHANGE

Slovenia is the signatory of all important international agreements for air and ozone layer protection and tackling climate change, which set the objectives to reduce emissions of various harmful substances that the states signatories have to achieve in the agreed time period, as well as other obligatory actions of the signatories. Slovenia has to also observe the provisions of the European Union directives, which also bind the Member States to achieve the set objectives for air and ozone layer protection and mitigating climate change.

3. ACHIEVEMENT OF OBJECTIVES AND IMPLEMENTATION OF MEASURES TO PROTECT AMBIENT AIR

The quality of ambient air is especially affected by the emissions of sulphur dioxide, nitrous oxide, volatile organic compounds, ammonia, carbon monoxide, particulate matter, and also heavy metals, lead, cadmium mercury and persistent organic pollutants. It is important that the countries ensure that the emissions do not exceed allowed yearly and daily limit and alert threshold values.

3.1. Comprehensiveness and completeness of the ambient air protection policy

In 2004 the Government of the Republic of Slovenia adopted an action plan, which determined measures to reduce total annual emission quantities of sulphur dioxides, nitrous oxides, volatile organic compounds and ammonia. It also adopted an action plan to reduce total annual emissions of sulphur dioxide, carbon monoxide and particulate matter (PM 10[47]) from large combustion plants. With regard to the determined actual state of emissions and unreal emission projections from 2004, revisions of both action plans were adopted in 2006.

A continuous exceeding of allowed daily limits and alert threshold values of particulate matter (PM 10) was determined on all densely populated areas in Slovenia in 2005 and 2006. The concentrations that exceed the allowed emission values were mostly affected by congested traffic in city centres. The measures to reduce excessive exceeding of allowed concentrations were not determined and adopted.

We assessed that the adopted policy to protect the ambient air quality was not comprehensive and complete. Only the measures to achieve yearly allowed emission quantities were determined and adopted, but not the measures to achieve daily and alarm threshold emission values of all important pollutants.

The Ministry of the Environment and Spatial Planning did not perform appropriate monitoring of adopted action plans for ambient air quality. In 2006 it prepared a revision of both adopted plans due to the changes of conditions, on the basis of which future emission projections were forecasted. However it did not assess and evaluate the effects, which were the result of performance of individual planned measures. It also didn't report to the public on the results of implementation of ambient air quality protection measures.

3.2. Assessment of achieving set objectives and efficiency of implementing measures

Based on the emission decreasing trend of sulphur dioxide, ammonia and volatile organic compounds emissions, we determined that the target emissions in 2010 shall not be exceeded. The emission trends of heavy metals and persistent organic pollutants show that the emissions of these substances are decreasing and that Slovenia does not exceed the reference values from the year 1990.

In the action plan it was forecasted that in 2010 Slovenia will not meet the emission ceiling for nitrous oxides. It was anticipated that the extent of measures implemented could not ensure reduction of emissions under the set ceiling. During the audit the Ministry of the Environment and Spatial Planning started to apply more contemporary and precise methodology to asses nitrous oxide emissions produced by the traffic (COPERT III methodology). According to the calculations of emissions evaluated under this methodology, the set objective of 45 thousand tons of nitrous oxide emissions in 2010 could be achieved. The Gothenburg Protocol and the Directive on National Emission Ceilings for Certain Atmospheric Pollutants, which specify the target value of nitrous oxide emissions, do not explicitly specify that the methodologies, which were used to determine the actual and the target emissions, have to be the same.

Nevertheless, we believe that the reduction of emissions only due to the application of a different methodology does not present an actual reduction of emissions as the result of successful implementation of measures. In accordance with the Gothenburg Protocol, the contracting parties have to continuously collect data on harmful effects of photo-oxidants (sulphur and nitrous compounds, ozone and heavy metals). We determined

47. Particulate matter 10.

that the Ministry of the Environment and Spatial Planning did not ensure an appropriate institutional organization in order to carry out monitoring of the effects of polluted air on natural vegetation and agricultural plants as well as monitoring of critical values for individual pollutants regarding their effects. This information is not collected systematically in Slovenia.

The measures to improve the ambient air quality to reduce the frequency of exceeding of allowed daily and alarm threshold values of particulate matter emissions were not performed. Therefore, the exceeding of allowed daily concentrations of particulate matter (PM 10) continuously occurred in the most densely populated areas with regular traffic congestion in 2007 as well.

In 2005 and 2006 no funds from the state budget were intended to finance the measures to improve the ambient air quality.

4. ACHIEVEMENT OF OBJECTIVES AND IMPLEMENTATION OF MEASURES TO PROTECT THE OZONE LAYER

4.1. Comprehensiveness and completeness of the ozone layer protection policy

In 2003, the Ministry of the Environment and Spatial Planning prepared and the Government of the Republic of Slovenia adopted two plans on handling of substances that deplete the ozone layer, namely the Action plan on handling of halons and the Action plan on handling of hydrochlorofluorocarbons. The action planes specify the measures to abandon the use and to handle these substances, especially the mandatory measures for controlled capture of halons and hydrochlorofluorocarbons from the devices, which still contain these substances. An appropriate legislation was also adopted, which determined mandatory handling of substances that deplete the ozone layer, in accordance with the Montreal Protocol and the Regulation of European Union on Substances that Deplete the Ozone Layer.

We determined that the Ministry of the Environment and Spatial Planning did not regularly collect and monitor the data on controlled capture of hydrochlorofluorocarbons and report to the public of implementing the adopted measures.

4.2. Assessment of achieving set objectives and efficiency of implementing measures

Production, marketing and use of the substances that deplete the ozone layer (hydrochlorofluorocarbons, other fully halogenated hydrochlorofluorocarbons, halons, carbon tetrachloride, 1,1,1-trichloroethane and partially halogenated hydrobromofluorocarbons) are prohibited in Slovenia. The measures for mandatory handling, capturing, recycling, removal and destruction of halons and hydrochlorofluorocarbons were determined and adopted. They have to be performed by the owners of devices that contain these substances and by authorised services of the equipment, which contains the substances that deplete the ozone layer.

There was no production, import, marketing and use of substances that deplete the ozone layer in Slovenia in 2005 and 2006, except the controlled allowed import of hydrochlorofluorocarbons for analytical, research and medical purposes, exclusively from the states signatories to the Montreal Protocol.

On the basis of the reports to the European Commission on the capture of substances from the waste devices that deplete the ozone layer, we determined that, according to the specified mandatory handling, in average only 31 percent of the hydrochlorofluorocarbon quantity from waste devices that contained these substances was appropriately captured. Almost 70 percent of the hydrochlorofluorocarbon quantity from the devices, which discontinued to be used in 2005 and 2006, were uncontrollably released into the atmosphere. The Ministry of the Environment and Spatial Planning does not have adequate data on the capture of hydrochlorofluorocarbons and did not perform suitable control of the capture of these substances.

Based on the inspections performed by the Inspectorate of the Republic of Slovenia for the Environment

and Spatial Planning, it was determined that the holders of devices, which contain substances that deplete the ozone layer, do not perform regular leakage inspection of these devices, which is why their malfunctions may occur more often and as a consequence even uncontrolled release of the substances that deplete ozone layer. The Inspectorate of the Republic of Slovenia for the Environment and Spatial Planning proposed that the Ministry of the Environment and Spatial Planning amend the legislation on handling of substances that deplete the ozone layer, so that the device operators would be obligated to report all uncontrolled releases to the Ministry of the Environment and Spatial Planning. The Ministry of the Environment and Spatial Planning has not carried out yet the proposed harmonisation of legislation.

In 2005 and 2006, the measures to abandon the use of substances that deplete the ozone layer were not financed from the state budget.

5. ACHIEVEMENT OF OBJECTIVES AND IMPLEMENTATION OF MEASURES TO TACKLE CLIMATE CHANGE

By signing the Kyoto Protocol, Slovenia undertook to reduce the greenhouse gas emissions by 8 percent in the period between 2008 and 2012 with regard to the base year. The emissions of these gases may not exceed 18.96 million tons of carbon dioxide equivalent emissions per year. Because of the carbon stocks bound in forests (carbon sinks), Slovenia can compensate for additional 1.3 million tons of carbon dioxide equivalent. Thus, Slovenia's emissions in the target period amount to the total of 20.28 million tons.

5.1. Comprehensiveness and completeness of the climate change mitigation policy

To achieve the Kyoto Protocol objectives the Government of the Republic of Slovenia adopted the Framework strategy to fulfil commitments under the Kyoto Protocol in 2002 and the Action Plan to reduce greenhouse gas emissions, which was amended in 2004 and 2006. By reviewing the mentioned strategic documents, we determined that:

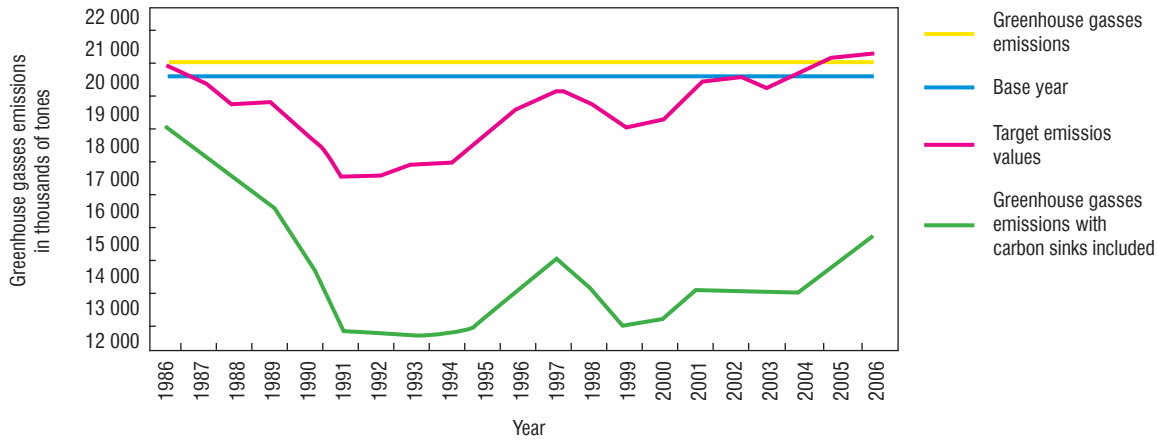
- the selection of the proposed measures to reduce greenhouse gas emissions does not base on cost -benefit analysis, therefore it is not clear, whether the most costefficient and economically justified measures were chosen;
- action plan does not contain long-term projections of greenhouse gas emissions thus it is not possible to plan and adopt a long-term policy to mitigate and adapt to climate change;
- national policy to tackle climate change does not contain measures to adapt to the already occurred consequences of climate change;
- the national policy on climate change is not adequately harmonised with national strategic development documents, as well as with sectoral policies in transport, energy and agriculture, which are of key importance to reduce greenhouse gas emissions;
- the Ministry of the Environment and Spatial Planning did not adequately monitor implementation of action plans to reduce greenhouse gas emissions in order to comprehensively assess and evaluate the effects of implementation of individual measures so far.

5.2. Assessment of achieving set objectives and efficiency of implementing measures

The greenhouse gas emissions in the base year in Slovenia amounted to 20,314 thousand tons. After 1986 they began to decrease due to the reduced scale of production and in 1991 reached the lowest point. Afterwards they began to increase again because of the revival of economic activity and the increase of production, so that in 2005 they exceeded the base year level from 1986. A smaller reduction of emissions was recorded in 1999 and 2000, but afterwards they started to increase again. The greenhouse gas emissions in 2006 amounted to 20,585 thousand tons and were higher by 3 percent than the target value for the period between 2008 and 2012.

The emissions have increased by 18.14 percent since 1992 and have been increasing by the average annual rate of 1.12 percent. The flow of greenhouse gas emissions between 1986 and 2006, the greenhouse gas emissions with already included actual sinks, and the base and target emissions in Slovenia are shown in Figure 1.

Figure 1. The flow of greenhouse gas emissions in Slovenia between 1986 and 2006

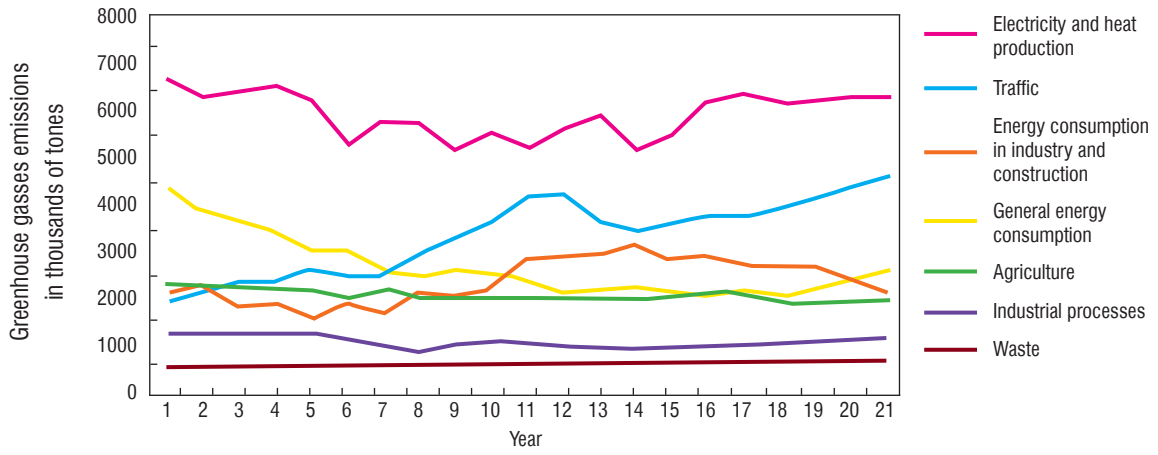


Source: GHG Inventory 2006, table 10: Emission trends, Environmental Agency of the Republic of Slovenia

After 1992 the greenhouse gas emissions have constantly increased. Their growth somewhat accelerated after the year 2000, because they have increased by the average annual rate of 1.45 percent. Projections referred to in the action plans that the emissions should begin to decrease after 2002 were not realised because of the inadequate extent of their implementation.

The emissions, which are the result of the fossil fuel combustion in energy production and its consumption, contribute more than three quarters of the total amount of greenhouse gas emissions. Because of fossil fuel combustion to produce electricity and heat, 31 percent of the total amount of greenhouse gas emissions is produced, during general consumption of energy[48] 14 percent, and during energy consumption in the industry and construction 11 percent. Because of the traffic approximately 22 percent of the total amount of greenhouse gas emissions are produced, and in the agriculture 10 percent of all emissions. The emissions, which are produced due to industrial processes, contribute 6 percent to the total amount of emissions, during waste disposal 3 percent of all greenhouse gas emissions are released, and the emissions from other sources contribute 3 percent. The flow of greenhouse gas emissions according to sectors is shown in Figure 2.

Figure 2. The flow of greenhouse gas emissions according to sectors between 1986 and 2006



Source: GHG Inventory 2006, table 10: Emission trends, Environmental Agency of the Republic of Slovenia

48. Consumption of energy in households, service sectors, agriculture and forestry

5.2.1. Implementation of measures in the energy and industrial processes sector

In the energy and industrial processes sector, mostly the measures to trade emission allowances and the measures to encourage efficient energy consumption and increase the share of energy consumption from renewable sources were carried out.

Emission trading scheme The European Union introduced mandatory trading in greenhouse gas emissions for its Member States at the European Union level and established the European Union Greenhouse Gas Emission Trading Scheme. The emission allowance trading scheme in Slovenia also presents part of the overall European trading scheme. The trading rules are regulated by the Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading. The emission allowance trading is performed in two periods, namely between 2005 and 2007 and between 2008 and 2012. By comparing the plans to allocate emission allowances for both trading periods, by comparing the data on the number of allocated emission allowances[49] and actual emissions for 2005 and 2006, and based on the results of the survey, which was conducted among installation operators that participate in emission allowance trading, we determined the following:

- The planned effect of operation of the emission allowance trading is the largest measure to reduce greenhouse gas emissions in Slovenia. It contributes one quarter to the total reduction of emissions and is therefore the most important measure.

- The allocation method of emission allowances between 2005 and 2007 enabled the allocation of a larger number of allowances to devices, which were technologically behind the best available technologies, because of considering historical emissions as the basis for the emission allowance allocation and merely symbolic consideration of the best available techniques. Such allocation was reflected also in the trading results, because most of the installation operators concluded the trading in 2005 and 2006 with allowance surplus with regard to the actual (verified) greenhouse gas emissions.

- The emission trading scheme in Slovenia is small and non-homogenous. 97 device operators participated in the market in 2005 and 2006. The largest operator was allocated 53 percent of all allowances during both years, the largest 10 operators 86 percent of all allowances, and 25 percent of the smallest participants received only 1 percent of all allowances. The described structure of emission allowance market participants limited the market operation to some extent, which is also evident from the questionnaire that we sent to the installation operators. Only 30 percent of all installation operators traded in emission allowances in 2005 and 2006. 64 percent of all traders traded in Slovenia, and the others in the frame of the European scheme. 80 percent of all who were active in the market traded to cover the deficit of emission allowances, and for 20 percent of all participants the allowances represented a financial investment.

- Based on the comparison of emission allowance allocation for both trading periods, we determined that the average annual quantity of allocated emission allowances for the period between 2008 and 2012 is lower than the average annual quantity of allocated emission allowances in the period between 2005 and 2007 by 6 percent.

In the period between 2008 and 2012 the use of the best available techniques shall be taken more into account, and the impact of historical emissions shall have to be smaller. We believe that under such allocation of emission allowances the efficiency of market operation shall be greater.

The measures to increase efficient energy consumption and to increase the share of energy consumption from renewable sources.

Reduction of emissions because of more efficient energy consumption and the increase in renewable energy consumption may be achieved especially by paying direct initiatives for such investments. Financial stimulations to investments were paid out by the Ministry of the Environment and Spatial Planning and favourable[50]

49. One emission allowance is issued for the emission of 1 ton of carbon dioxide.

50. Favourable loans mean that the loans are treated according to a more favourable interest rate than the market interest rate.

loans by the Environmental Fund of the Republic of Slovenia. During verification of granting of direct initiatives we determined the following:

- The funds are awarded by two different institutions, therefore there are two parallel decision-making systems on co-financing of investments with the same purpose. An individual recipient can receive non-refundable funds and also a favourable credit for the same investment. Because demand of non-refundable funds as well as favourable credits is much higher than the offered funds and because it is still increasing, such parallel stimulation of investments does not ensure the most efficient allocation of funds and therefore co-financing of a larger number of investments.

- The effects of carried out investments are determined by the Environmental Fund and the Ministry of the Environment and Spatial Planning with regard to nonrefundable funds and granted favourable credits. The institutions do not have information, whether a particular applicant was granted also by the other institution, therefore both institutions determine the effects for the entire investment. Thus, the duplication of assessment of actual effects of carried out investments occurs, because of which the overall assessment of greenhouse gas emission reduction is overestimated.

- In 2005, EUR 4,335 thousand were intended to subsidise investments into efficient energy consumption and to increase the share of renewable energy, with which the greenhouse gas emissions were reduced by 24 thousand tons, and EUR 3,995 thousand in 2006, with which the emissions were reduced by 28 thousand tons.

Compared to the annual amount of planned grants, in 2005 only 7.5 percent of all planned funds were intended for these investments, and in 2006 only 7 percent. In 2007, EUR 3,800 thousand (6.6 percent of planned amount) were intended to subsidise investments into efficient energy consumption and to increase the share of renewable energy. Inadequate co-financing of measures to increase the share of renewable energy was also reflected in the primary energy balance of Slovenia, whereby the share of renewable energy consumption in 2006 amounted to 10.7 percent and was lower by 1.2 percentage point compared to the year 2000.

5.2.2. Implementation of measures in the transport sector

The main effects of greenhouse gas emission reductions in transport could be achieved by redirecting the road transport to the railways and increasing the role of public passenger transport. During the audit of implementation documents, we determined that the objectives of measures, which also have indirect effects in reductions of greenhouse gas emissions, were not specified, the time schedule of implementation of individual measures was not determined, the implementation costs of measures were not assessed, as well as the effects of implementation of individual measures to reduce greenhouse gas emissions. The funds to implement measures to reduce greenhouse gases in transport were not planned in the 2008 and 2009 state budget drafts. We also determined that the method to determine and monitor the effects of implementation of individual measures in transport is inadequately detailed in order to successfully measure the effects of their implementation in the target period.

5.2.3. Implementation of measures in the agriculture sector

We determined that in agriculture for the years 2005 and 2006 it is not possible to determine the effects of implementation of measures to reduce greenhouse gas emissions and whether the planned effects were achieved, because adequate assessment and monitoring mechanisms of these effects were not established. It is possible to determine the flow of emissions in agriculture from the records of total emissions, but since no methodology was used and individual effects were not monitored consistently, it is not possible to precisely determine and attribute the effect to a particular measure. The method to determine and monitor the effects of implementation of individual measures in agriculture was not adequately detailed in order to successfully measure the implementation effects of these measures in the target period.

5.2.4. The assessment of implementation of measures to reduce greenhouse gas emissions in 2005 and 2006 and the assessment of possible achievement of emission target values in the period between 2008 and 2012

The reduction of greenhouse gas emissions in the key sectors of energy and transport is not being carried out in accordance with the planned implementation dynamics of measures. On the basis of the described current implementation of planned measures, we assessed that the measures in energy, industry and transport sectors were not realistically planned, and if they are carried out inconsistently, the planned reduction of emission values shall not be achieved. The implementation of most planned measures is expected in the target period therefore the effects in most cases will occur afterwards. The lack of budget funds to finance the implementation of measures to reduce greenhouse gasses points to the fact that implementation of this policy in Slovenia does not present an adequate priority despite signing the international agreement to achieve agreed reduction of emissions.

6. REQUIRED CORRECTIVE MEASURES AND RECOMMENDATIONS TO THE AUDITEES

On the basis of described findings we requested that the Ministry of the Environment and Spatial Planning prepares measures to protect the ambient air quality, especially measures to reduce particulate matter emissions (PM 10), and that it prepares a strategy and a plan to implement the tasks of the Climate Protection Office. Individual planned activities of the Office, holders of activities and the time schedule of their implementation have to be clearly defined, whereby it is necessary that system solutions for the preparation of the strategy to adapt to the consequences of climate change are adopted and the climate change aspect is integrated into the key national development and sectoral policies.

We recommended to the Ministry of the Environment and Spatial Planning to begin to monitor and control capture of the substances that deplete ozone layer, to prepare a new action plan to reduce greenhouse gas emissions based on long-term emission growth projections, to consistently evaluate the effects of the current implementation of measures and in case of probable future allocation of emission allowances examine the possibility of allocation of larger quantities of allowances through an auction. We recommended to all auditees to identify all sectoral measures which may contribute to the reduction of greenhouse gas emissions, determine their possible effects as the objective and to ensure consistent monitoring of this objective

Table 1: The objectives and time limits to achieve the set objectives to reduce emissions of important pollutants to protect the ambient air, the ozone layer and manage climate changes

International agreement/ European Union directive	Harmful substance	Time limit to achieve the set objective	Slovak Republic		Slovenia		Czech Republic		Austria	
			Set objective	Assessment of achieving/ possibility to achieve set objectives	Set objective	Assessment of achieving/ possibility to achieve set objectives	Set objective	Assessment of achieving/ possibility to achieve set objectives	Set objective	Assessment of achieving/ possibility to achieve set objectives
Ambient air protection										
The Gothenburg Protocol, Directive of the EP and Council 2001/81/EC on National Emission Ceilings for Certain Atmospheric Pollutants	Nitrogen oxides	2010	130 thousand tons per year	high possibility	45 thousand tons per year	low possibility	286 thousand tons per year	medium possibility	/	/
	Volatile organic compounds	2010	140 thousand tons per year	high possibility	40 thousand tons per year	high possibility	220 thousand tons per year	high possibility	/	/
	Sulphur dioxide	2010	110 thousand tons per year	high possibility	27 thousand tons per year	high possibility	265 thousand tons per year	high possibility	/	/
	Ammonia	2010	39 thousand tons per year	high possibility	20 thousand tons per year	high possibility	80 thousand tons per year	high possibility	/	/
Directive of the Council 96/62/EC on Ambient Air Quality	Permitted daily values and alert thresholds for concentrations of sulphur dioxide	2005	350 micrograms per cubic metre per hour*; 125 micrograms per cubic metre per hour**	yes	350 micrograms per cubic metre per hour*;125 micrograms per cubic metre per hour**	yes	350 micrograms per cubic metre per hour*;125 micrograms per cubic metre per hour **	yes	/	/
	Permitted daily values and alert thresholds for concentrations of particulate matter (PM 10)	2005	50 micrograms per cubic metre per day***; 40 micrograms per cubic metre per year	no	50 micrograms per cubic metre per day***; 40 micrograms per cubic metre per year	no	50 micrograms per cubic metre per day***; 40 micrograms per cubic metre per year	no	/	/

ADDRESSES

1. Conference of the Parties to the UN FCCC, Copenhagen
2. Secretariat of the UNFCCC, Bonn,
3. European Court of Auditors
4. European Commission
5. European Environment Agency
6. INTOSAI and EUROSAI WGEA Secretariats
7. INTOSAI Global Audit on Climate Change Coordinator
8. Heads of participating SAIs
9. Parliaments in the countries of participating SAIs
10. Relevant Ministers in the countries of participating SAIs
11. Intergovernmental Panel on Climate Change