SLOVENIA'S FIFTH NATIONAL COMMUNICATION UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Republic of Slovenia
Ministry of the Environment and Spatial Planning

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INTRODUCTION

The fifth National Communication has been prepared during the period of a large global economic crisis, which cannot be detected in this communication, since the processed data indicates a level of high economic activity, observed also in the inventory of greenhouse gas emissions.

In Slovenia, the operationalisation of objectives to reduce the greenhouse gas emissions under the undertakings of the Kyoto Protocol was implemented primarily on the basis of the Operational Programme for Limiting Greenhouse Gas Emissions until 2012 that was adopted by the Government of the RS at the end of 2006. It has to be mentioned that the majority of measures in various sectors has been implemented in accordance with the expectations of this programme with the exception of the transport sector, where the emissions of carbon dioxide after the entry of Slovenia in the European Union have begun to rapidly increase, primarily due to the highly increased level of freight transit transport. The increasing trend has not been calming down, even after five years. Therefore, the Government of the RS adopted in the summer of 2009 a new operational programme that adapts the measures to reduce greenhouse gas emissions to the newly created circumstances.

An important potential to reduce greenhouse gas emissions in Slovenia is an increase in efficiency of final energy consumption in all sectors. The acceleration of the implementation of energy efficiency measures shall be carried out by the informing, public awareness and education of energy consumers, counselling and direct encouragement of investments by legal and natural persons in efficient energy consumption and renewable energy sources. The first batch of energy-saving building restoration is also in preparation, including hospitals and primary as well as secondary schools.

Despite the newly stipulated measures, Slovenia shall not be able to comply with the undertakings of the Kyoto Protocol by 2012 according to available GHG emissions data from 2007; therefore, it shall be necessary to purchase the rights to greenhouse gas emissions on the international market. Since the projections were made a year ago, the outcome colud be substatntialy different due to economic crisis indirect effect on GHG emissions.

The implementation of activities to reduce greenhouse gas emissions has been strengthened since the summer of 2009 also on the institutional level with the establishment of a special Government Office of the Republic of Slovenia of Climate Changes. Besides the Ministry of the Environment and Spatial Planning, the latter shall be responsible for the implementation of international undertakings of Slovenia and for a better coordination between the ministries in the area of climate change.

Despite the problems of Slovenia in the fulfilment of its undertakings of the Kyoto Protocol, it shall stand for more ambitious plans to reduce greenhouse gas emissions in all sectors and on the global level; namely, Slovenia is aware that this shall be strictly necessary for the preservation of climate, as we know it today, and the prevention of large-scale disasters. If we face obstacles on the path to the indicated objectives from this perspective, we shall see that these obstacles are not as immense; namely, dealing with the economic crisis may also help us in dealing with climate change.

Karl Erjavec, Minister for the Environment and Spatial Planning

1 EXECUTIVE SUMMARY

1.1 National Circumstances

The Ministry of the Environment and Spatial Planning is responsible for the preparation and implementation of environmental policies and legislation.

In the period 1991–2007, the population increased slightly to 2,025,866, primarily due to increasing migrations. The population density is moderate.

Slovenia is located in Central Europe. The surface area of the territory is 20,273 km2. Its landscape and biosphere are very diverse. The majority of its surface is covered by forests (58.4 %[1]).

Three climate types are found in the territory of Slovenia: sub Mediterranean, Alpine and continental. Average annual temperature in the sub Mediterranean climate type is 12°C, in the lower regions of central Slovenia it ranges from 8 to 1°C, while at the highest peaks it never exceeds 0 °C. In the majority of the country, the average temperature in the 30-year period increased by approximately 1.5 °C. Annual precipitation varies to a great extent; from 800 mm in the extreme north-eastern and 1000 mm in the extreme south-western part of the country, to over 3000 mm in the north-western part of the country.

Slovenia has been a full member of the European Union since 1 May 2004; the Euro became the national currency on 1 January 2007.

From the second half of the 1990s to 2007, Slovenia had a high level of economic growth, which had already amounted to 6.8% in 2007. In 2008, a drop in economic growth by almost a half was indicated, which is primarily a result of the global economic crisis. In the value added structure in 2007 the highest percentage is held by services, followed by industry, construction and agriculture. Since 1990, the share of services has increased, and the share of industry and agriculture has decreased.

The consumption of primary energy has increased from 2000 to 2007 on average by 2.1 % annually, while the intensity of the consumption of primary energy in the period 2000-2007 increased on average by 2.3 % annually. The highest proportion is held by liquid fuels, followed by coal, which is the only domestic source of energy, nuclear energy and natural gas. Renewable sources (principally wood and hydro energy) represent less than a 10 % share. The average annual growth of the consumption of final energy for the period 2000-2007 amounts to 1.5 %.

The volume of road cargo and automobile traffic is increasing, as a consequence of a higher number of vehicles and the increased average number of kilometres driven. The number of passenger kilometres in public road transport is decreasing. Railway traffic has been increasing since 1992 after a substantial decrease at the beginning of the 1990s. Due to its location, Slovenia is highly exposed to transit traffic, which makes up a substantial share, especially of cargo transport.

[1] Data for 2007 (source: Slovenian Forest Service). Forest coverage data does not include data on areas being reclaimed and therefore does not correspond to the data on forest coverage.

From 2004 to 2007, industrial production increased on an annual level from 8 to 12 %. Processing activities were at the forefront, followed by electricity, gas and water supply, and mining. In the period 2000 to 2007, the share of the consumption of final energy in processing activities increased by 1.4 %, while the decrease of energy intensity in processing activities strengthened in 2006 and 2007 after a five-year slowdown.

The average amount of waste being produced is increasing. The same trend holds for the amount of municipal waste collected by public removal services. The proportion of separately collected fractions is increasing, while the highest increase is indicated for the separately collected waste packaging and biologically degradable waste. The prevailing form of waste treatment is deposition. The trend of the recycling of industrial waste has also been increasing – in 2007, the share of industrial waste was 76 %.

The construction of residential units has constantly increased in the period 1990-2008, with a slight decline in 1994, 1999 and 2003. The average floor area of residential units has also increased. The consumption of final energy in households has decreased in the last four years, after an increasing period since 1998.

The decreasing trend of the proportion of agriculture in value added has been continuing. Since 2002 when it amounted to 2.9% it decreased to 2.1%. The most important branch since 2004 has been plant production, which accounted for 53.1 % of agricultural production in 2007. The consumption of mineral fertilisers in Slovenia decreased by 21.2 % in the period 1992-2007. There has been an increasing trend of organic farms; in 2007, the share of organic farms represented 5.9 % of all agricultural land used. Since 1990, Slovenia's forest coverage and timber supply have increased.

1.2 Greenhouse Gas Emissions Inventory

The base year for Slovenia with regard to the gases CO_2, CH_4 and N_2O is 1986.

Total emissions of greenhouse gases increased by 1.8 % in 2007 in comparison with 1986 emissions.

CO_2 emissions increased by 4.3 % with regard to 1986, while CH_4 and N_2O emissions decreased by 9.4 % and 4.1 %, respectively.

The base year for F-gas emissions is 1995. Total emissions of F gases in 2007 represented 1.2 % of all emissions, while some of them (HFC in SF_6) increased strongly in comparison with the base year.

Sinks were estimated at 5.774 Tg CO_2 in 2007, which represents an increase of 263 % in comparison with 1986.

GHG emissions in the industry sector decreased sharply from 1986 to 1993, followed by an increase; however, the emissions in 2007 were lower than those in 1986 by 4.9 %. Agriculture represented 10.1 % of all GHG emissions in 2007. The most essential source of GHG emissions in agriculture is methane (54.9 %) and N_2O (45.1 %). GHG emissions in agriculture indicate slight fluctuations for each individual year; however, it is possible to determine that

the trend is decreasing. Emissions in 2007 were lower by 10.8 % than in the base year. Waste emissions increased by 19 % with regard to the base year.

1.3 Emission reduction policies and measures

With the ratification of the Kyoto Protocol in 2002, the Republic of Slovenia has undertaken to reduce GHG emissions in the period 2008-2012 by 8 % with regard to the base emissions.

The Operational Programme for Limiting Greenhouse Gas Emissions (OP-TGP) was adopted by the Slovenian Government in July 2003, and amended a year later. A new programme was adopted in 2006, and renewed in 2009.

The Republic of Slovenia as an EU member has also undertaken to realise the European climate policy and implement the joint measures.

The most important measures and instruments to reduce GHG emissions are:

- GHG emission allowance trading (The objective of the measure is to reduce the emissions where this is least costly.)
- Environmental tax for the pollution of air with CO_2 emissions (The objective is to internalise the external costs of air pollution with CO_2.)
- Kyoto flexible mechanisms (Due to the increase of traffic emissions, Slovenia will most probably have to use the flexible Kyoto mechanisms for the amount of 1.1 Tg CO_2 eq/annually to comply with the Kyoto commitment. The effects of domestic measures significantly exceed the expected use of Kyoto mechanisms.)
- Taxes and charges (The state may influence the price ratios between the energy products by taxes and charges; in this way, it shall direct consumption.)
- Awareness, informing, promotion and education (High level of awareness, information and knowledge is necessary for the successful implementation of measures.)
- Increase in the energy efficiency of power and heat generation in large combustion plants (Large thermal power plants are already nearing the end of their life expectancy; therefore, their replacement is being planned. This will also influence the larger share of natural gas.)
- Promotion of combined heat and power generation with high efficiency (The promotion scheme is the basic instrument in this area, implemented also in the form of fixed buying-in prices of electrical energy and operation grants.)
- Promotion of electricity production from RES (The same instrument as for the CHP – see above)
- Promotion of efficient energy use in industry (Besides the reduction of production costs, the state is also promoting higher efficiency of energy use in industry by various programmes.)
- Promotion of the use of RES as a heat source (The state is promoting the higher RES use by subsidization and favourable loans and regulations. A strong motivating factor is also the high prices of fuel oil, which the state may influence by excise duties and taxes.)
- Promotion of energy efficiency in the public sector (The public sector must set an example for the population in implementing the measures. The measures will be

promoted by financial incentives, while an important factor will be green public procurements.)

- Energy labelling and minimum standards for products and devices (The measure will significantly influence the significantly lower use of electrical energy by awareness and limitation of the use of energy wasteful products.)
- Promotion of energy efficiency in households and the service sector (Higher efficiency will be achieved by the promotion of the existing housing fond renewal, promotion of the change in behaviour and strict legislation with regard to the thermal characteristics of buildings.)
- Reduction of emissions of passenger motor vehicles (Specific use of vehicles will be reduced by the directive regulating the permitted emissions per km for new vehicles, fiscal measures, awareness and informing.)
- Promotion of the consumption of biofuels (Biofuels are CO_2 neutral, while their use is encouraged by the exemption from excise duty – lower price and obligations of distributers based on legislation.)
- Promotion of the use of public transport (The objective of the measure is to increase the number of passengers in public transport, which has been decreasing so far.)
- Sustainable freight transport (Due to its position, Slovenia is highly exposed to transit transport – in 2008, it represented 17 % of the use of engine fuels. The objective of the measure is to extend and modernise the railway network, which presents a precondition for the transition of freight transport from roads to railway.)
- Reduction of F-gases emissions (Emissions will be significantly reduced by the enhancement of supervision over leakage, management, etc. as well as replacements in automobile air-conditioning appliances.)
- Increase of the efficiency of domestic animal production (The objective of the measure is to reduce the amounts of released methane and nitrogen per unit of produced milk and meat.)
- Increase in the range of grazing for cattle (Grazing is promoted by subsidizing measures and education; it also produces lower emissions due to the avoidance of emissions generated through the storage of animal fertilisers.)
- Rational fertilisation of agricultural land by nitrogen (Within the framework of the Rural Development Programme, numerous measures are implemented, directly contributing to the reduction of the use of mineral fertilisers.)
- Reduction of the quantity of deposited biodegradable waste and capture of landfill gas (Slovenia has adopted several measures to reduce the amounts of deposited biodegradable waste; for instance, separated collection of fractions, environmental tax for waste disposal, etc.. Furthermore, the mandatory recovery of landfill gas is prescribed by law, while the reorganisation of the waste management system, where the local system will be upgraded to the system of regional centres, is also in progress.)
- Sustainable forest management and CO_2 emission sinks (Increase of the wood supply simultaneously with the increase of CO_2 sinks is a result of the planned work by the Slovenian Forest Service based on the principles of sustainability, environmental friendliness and multi-purposeness.)

Slovenia's Development Strategy (SDS) adopted by the Government of the Republic of Slovenia in 2005 presents an umbrella national development strategy derived from the principles of sustainable development and integration of development policies. In accordance with Slovenia's Development Strategy, the sectoral programmes are also sustainably directed; for instance, the Resolution on the National Energy Programme, Resolution on Traffic Policy, Resolution on the National Programme of Environmental Protection, etc..

The emission coupon register started to operate in November 2005.

1.4 Emission Projections and Assessment of Total Impact of Policies and Measures

Projections have been prepared for two scenarios, with measures and with additional measures. The scenario »with measures« includes all measures indicated in the chapter Measures and Policies (measures implemented or adopted by 2008), while the scenario with additional measures stipulates a higher intensity of implementation of measures in other sectors and industry.

The total emissions shall increase only in 2008, followed by decreasing periods. According to the projection with measures, in 2010 the emissions shall amount to 21.06 Mt CO_2 eq, while according to the projection with additional measures 21.04 Mt CO_2 eq. With regard to 2007, emissions are higher by 1.6 or 1.5 % respectively. By 2020, emissions shall reduce to 19.83 or 19.76 Mt CO_2 eq, which is less than the emissions in 2007; namely, by 4.3 or 4.6 % respectively.

The main sectoral sources of emissions are energy supply and transport. In 2008, the emissions from these two sectors are almost equal. After this year, emissions of energy supply shall first slightly and then sharply decrease, while in the sector of transport they shall increase after a slight decrease in 2010. Emissions of industry shall significantly decrease after a slight increase in the period 2008-2012. In other sectors, emissions will continue to decrease from 2009 on. In agriculture, the emissions will slightly increase due to an increase of the number of animals; in the waste sector, emissions shall decrease due to decrease of deposited biodegradable waste.

The CO_2 sinks shall decrease by 2020; however, in 2020 they will still exceed the permitted quota that Slovenia may use for the fulfilment of the Kyoto Protocol.

Slovenia's Kyoto commitment presents 18.726 Mt CO_2 eq. Average emissions without taking into account the sinks in the period 2008–2012 according to the projection with additional measures amount to 21.141 Mt CO_2 eq. Taking into account sinks in the amount of 1.32 Mt CO_2, they amount to 19.821 Mt CO_2 eq. Hence it follows that with the implementation of all domestic measures Slovenia shall not achieve the Kyoto commitment. The difference between the projections of emissions and Kyoto commitment shall be covered by the purchase of Kyoto units or emission coupons. The Government of the RS will prepare the management programme with these units by the end of 2009.

The total effect of all measures (implemented, adopted and additional) in 2010 amounts to 3.2 Mt CO_2 eq, and to 9.6 Mt CO_2 eq in 2020. The largest share is the reduction of CO_2 emissions.

Figure 1.4.1: The existing levels of GHG emissions by sectors until 2007, and levels according to the projection with measures until 2020

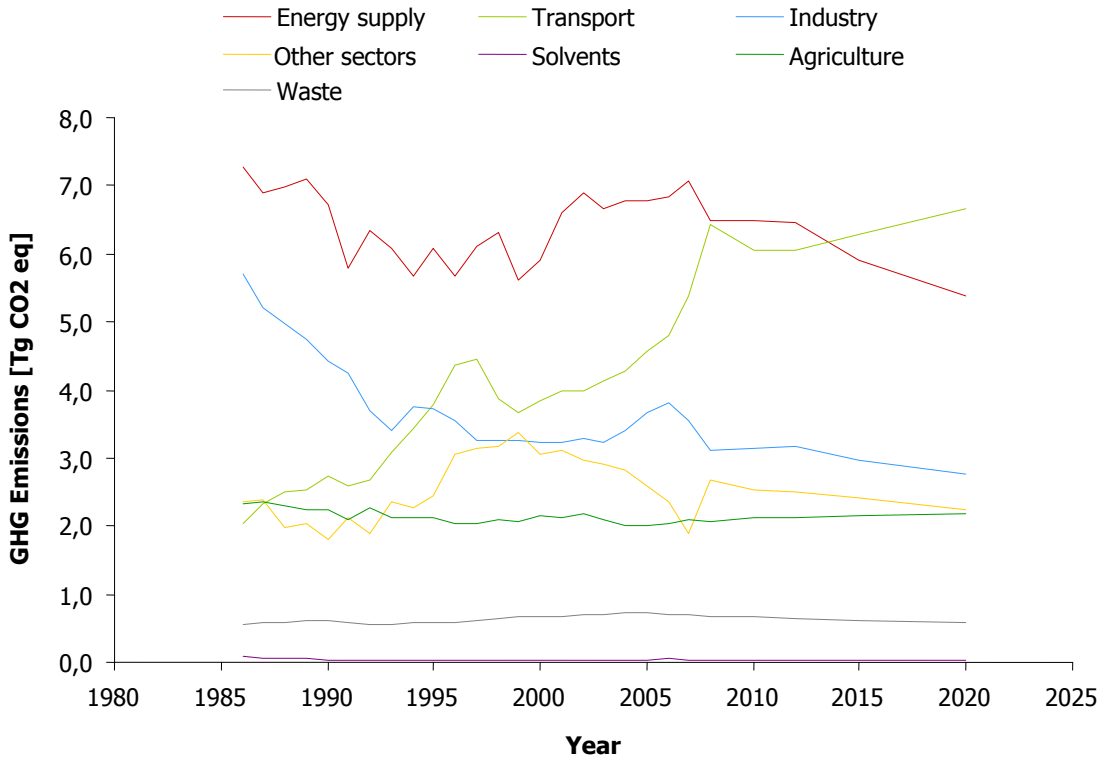
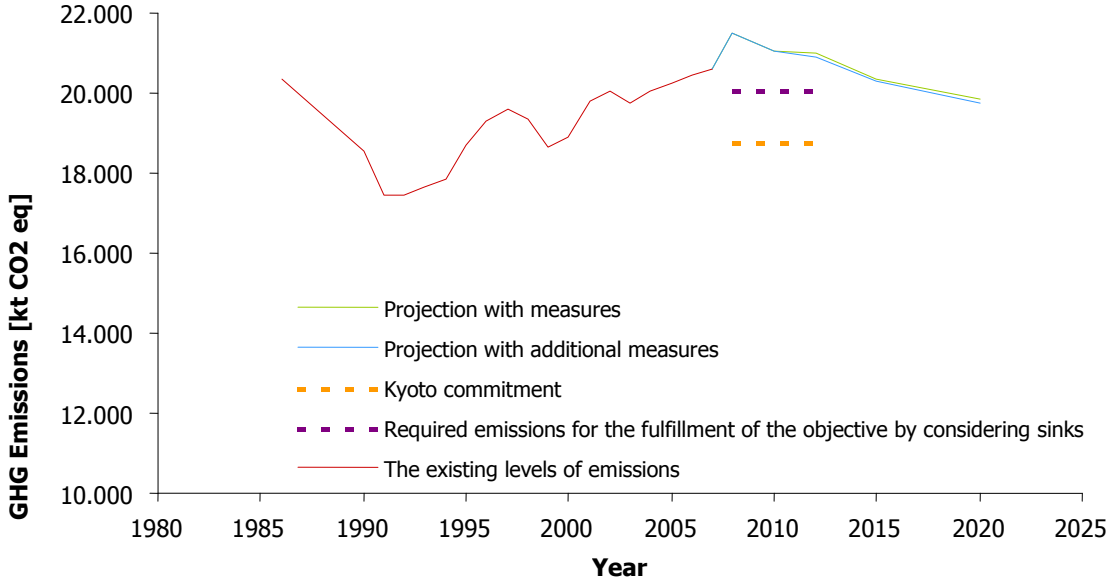


Figure 1.4.2: The existing levels of emissions (in the period 2005-2007, the allocated emission coupons are considered for sources in the EU-ETS) and levels of emissions according to the projection with measures and with additional measures in comparison with the Kyoto commitment



1.5 Vulnerability Assessment, Climate Change Impacts and Adaptation Measures

On the basis of its orographic and climate characteristics, Slovenia belongs to the more endangered countries due to climate change.

We can expect a significant temperature increase in the warmer half of the year in comparison with the colder half of the year. We can also expect a decrease in the precipitation quantity in the warmer half of the year and an increase in the precipitation quantity in the colder half of the year. The results of the projections for the selected five locations and individual seasons indicate that according to the period 1961-1990 until the end of the 21st century, the summer will warm up the most (between 3.5°C and 8°C), followed by winter (from 3.5°C and 7°C), spring (between 2.5°C and 6°C) and autumn (between 2.5°C and 5°C). According to the implemented projections, in spring and autumn months we don't expect any significant changes in the precipitation quantity – in winter months we expect an increase in the precipitation quantity (to + 30%), while in the summer months a decrease in the precipitation quantity (to –20%).

In relation to the priority tasks of the climate change measures, the Republic of Slovenia estimates that special attention needs to be devoted to the following sectors in general:

- sectors that currently indicate a strong vulnerability for the current climate variability (for instance, agriculture),
- sectors where the vulnerability for climate change is increased by current trends (for instance, urban development, use of space),
- sectors where the adaptation time is the longest and the subsequent development changes are connected with the highest costs (for instance, use of space, infrastructural objects, forestry, urban development, building stock).

Considering the views of Slovenia to the climate change problem in Europe and Slovenia, priority measures and emphasis on future adaptation to climate change, the Republic of Slovenia has especially exposed the following action areas:

- sustainable and integrated management of water sources for water power production, prevention of floods, provision of water for the enrichment of low flow rates, and preservation of environmental function as well as provision of water for other needs;
- sustainable management of forest ecosystems, adjusted to changes, for the provision of their environmental function as well as being a source of biomass, wood for products for the conservation of carbon, and carbon sinks;
- spatial planning as one of the important preventive instruments for the adaptation to climate change through the processes of integral planning of spatial and urban development;
- sustainable use and preservation of natural wealth and the preservation of biodiversity as well as ecosystem services with measures and policies that enable an enhanced resistance of ecosystems to climate change, and the role of biological diversity in integral adaptation measures;
- informing and awareness on the consequences of climate change and adaptation possibilities.

For years, the most endangered sectors have been agriculture and forestry; therefore, they are also the only sectors for which a national adaptation strategy was adopted.

1.6 Financial sources and technology transfer

In the area of programmes and activities to support and promote the development, aplication and diffusion and financing of the transfer of and access to environmental technology to combat climate change, Slovenia's contributions within the framework of international development cooperation was:

- as the donator within the framework of the UNIDO co-financed projects in connection with climate change,
- co-financing educational projects within the framework of the CEP (Centre for European Perspective) ,
- in cooperation with NGO co-financed projects on sustainable development and sustianable energy,
- as the donator for preparation of stratigic documets in Republic of Macedonia.

Slovenian institutions, private as well as public, have been participating as project partners within the framework of transnational cooperation in South-Eastern Europe (SEE Programme), in projects connected to the problems of climate change.

Within the framework of the Ministry of Higher Education, Science and Technology, international projects are conducted within the framework of the EUREKA initiative and within the framework of bilateral cooperation, primarily in the area of the Western Balkans. Slovenian researchers and the RS as the co-financing party participate in these projects.

The Slovene Export and Development Bank, which is state owned, has also been performing financial services in the area of environmental protection and energy efficiency.

In the private sector, Slovenian companies are acting primarily in the energy sector in the countries of South-Eastern Europe as investors and operators.

1.7 Research and Systematic Observation

Systematic observation and measurements are carried out by the Environmental Agency of the Republic of Slovenia (ARSO), within the framework of which the National Meteorological Service and National Hydrological Service operate.

- ARSO carries out measurements of air pollution in permanent measuring stations, including background measurements, air quality measurements with mobile stations and diffusive samplers and precipitation quality measurements.
- In 1993, we joined the ALADIN consortium that takes care of the development of the same model for numeric weather forecasting and the development of its successors, ALARO and AROME. Nowadays, the consortium joins 16 European and North-African countries.
- Slovenia as a WMO member and signatory of the United Nations Conventions to Combat Desertification (UNCCD) has actively participated since 2006 in their initiative on the establishment of the Drought Management Centre for South-Eastern Europe (DMCSEE).
- At the beginning of 2008, the National Meteorological Service joined the Network of European Meteorological Services (EUMETNET) and became its 24th member.

– Recently we have begun with formal discussions regarding the full membership of Slovenia in the European Centre for Medium-Range Weather Forecasts (ECMWF) with its seat in Reading, Great Britain. This is the leading organisation in the area of numeric modelling of weather on a global scale.
– The surface water programme includes the monitoring of rivers, lakes and sea conditions and programmes for the monitoring of water quality in the areas of special regimes. The basic units to determine the water conditions with regard to environmental objectives are water bodies. In Slovenia, 155 water bodies were specified in surface water and 21 in underground water.
– A highly important task of the ARSO is also the implementation of intercountry and international monitoring in accordance with bilateral agreements and international conventions. Monitoring is carried out with neighbouring countries on border watercourses, while within the framework of the Danube Convention we are participating in the international monitoring of the Danube. Furthermore, within the framework of the Barcelona Convention we are monitoring the sea quality and intake of pollution from the land.
– In order to establish a quality and sustainable monitoring of the environment, ARSO established the project »Upgrade of the system for monitoring and analysing the conditions of the water environment in the Republic of Slovenia«.

The central position in the area of research and development activities (RDA) is being held by the Ministry of Higher Education, Science and Technology (MVZT), Slovenian Research Agency (ARRS) and Ministry of the Economy (MG). Besides the indicated institutions, the basic research activities are carried out by the Meteorological Office, ARSO as the operator of the National Meteorological Service, that among other tasks also studies the »climate change and its prognosis«:

- In autumn 2008, a three-year internal project »Climate Variability in Slovenia« was commenced. The purpose of the project is to obtain and provide to users a comprehensive review of the variability of the climate, primarily in the past 50 years, included in the comprehensive climate database.
– The Meteorological Office of the Environmental Agency of the Republic of Slovenia cooperates in the project of the Department of the Environment at the University of Ljubljana and Atmosphere Research Centre at the University of Nova Gorica, *Numeric climate modelling with high resolution for the preparation of climate change scenarios in Slovenia for the 21st century*. The basic purpose of the project is to critically evaluate the available results of regional climate models that include the territory of Slovenia, and compare them with the results of its own simulations, which will contain the numeric model ALADIN with a resolution of 9 km in the global model ARPAGE-Climate.
– Furthermore, the state financed through ministries numerous research projects in the area of climate change. Initiators and co-financers of these research projects were the Ministry of the Environment and Spatial Planning, Ministry of Agriculture, Forestry and Food, and Ministry of Defence.
– Through the FGG and the company PUH, Slovenia has been involved in two European projects MONITOR-II and PARAmount that indirectly refer also to the consequences of climate change; it has been also involved in the international project PLANALP.

1.8 Education, Training and Public Awareness

Environmental education is conducted at all education levels, from kindergartens to secondary schools. In higher education, environmental topics are included in courses which are connected with such issues and within curricula which focus on this topic.

The level of awareness and information provided to the public is increasing as a result of numerous publications and events with the topics of climate change, life-style changes, RES use and potentials for decreasing energy consumption. Consulting services are also widely available (ENSVET citizens' consulting network, fairs, workshops, seminars, lectures, presentations, and websites). Non-governmental organisations are also very active in this field. More activities will be required in the future in this field; the Government in particular should assume a more active role, and a more holistic approach to the issues is required.

2 NATIONAL CIRCUMSTANCES

2.1 State Organisation

In terms of political structure, the Republic of Slovenia is a parliamentary democracy. The president of the country is elected in direct elections to a maximum of two five-year terms. The National Assembly, the highest legislative body, is composed of 90 members of parliament, elected to a term of four years. The Government is formed by the Prime Minister; it is composed of 15 ministers, of whom two are ministers without a portfolio. Since 1 May 2004, Slovenia has been a member of the European Union.

In June 2009, the Government established the Government Office of the Republic of Slovenia of Climate Changes that should primarily provide for the guidance of sectoral policies in the area of climate change. The Ministry of the Environment and Spatial Planning is responsible for preparing and implementing environmental and climate policies. Until 2009, its jurisdictions also included the area of renewable energy sources and efficient energy use, which was transfered to the Ministry of the Economy within the framework of the Energy sector in the end of 2009. In preparing the climate policies, the Ministry of Environment and Spatial Planning also cooperates with other ministries: the Ministry of Transport, Ministry of Agriculture, Forestry and Food, Ministry of the Economy, Ministry of Finance and other ministries. The Environmental Agency of the Republic of Slovenia (ARSO) plays an important role in implementing environmental legislation and tasks in the field of environmental protection and monitoring. Two specific bodies are also active in the field of environmental protection, i.e. the Sustainable Development Council, chaired by the Minister responsible for European affairs and development, and the Environmental Protection Council of the Republic of Slovenia, which was established by the National Assembly of the Republic of Slovenia.

There are 210 municipalities in Slovenia with their own administrations and budgets, of which 11 have the status of urban municipality. Municipal competencies in the field of reduction of GHG emissions are related to spatial development planning, local and public traffic regulations, preparing local energy use plans and waste collection and deposition. Urban municipalities are obliged to provide monitoring for emissions and adopt environmental protection programmes as well as action plans.

2.2 Population Profile

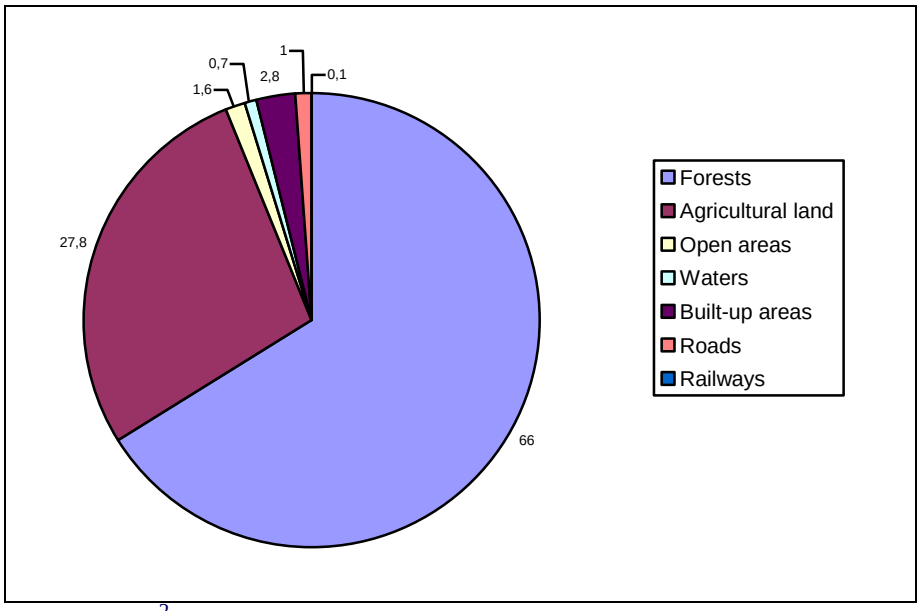
According to censuses, Slovenia had 1,964,036 inhabitants in 2002. According to 2008 Statistical Yearbook data, the population in Slovenia increased in 2007 to 2,025,866. According to the Eurostat projections for Slovenia the population will increase to the year 2020, while after this year it will begin to drop, so that in 2060 it shall decrease to 1,778,600. In 2006, the population growth turned the first time after nine years in the positive direction; in 2007, it amounted to 0.6 per 1000 people. Despite the higher population growth in recent years, the number of population is increasing primarily due to an increasing net migration. The population of Slovenia is also getting older. In 1991, the average age was 35.9, and in 2006 it was 40.8 years. Life expectancy of the population in Slovenia in 2007 was 82.30 years for women and 74.98 years for men. Population density is moderate and amounts to 98 inhabitants per km2. A very dispersed type of settlement is characteristic for Slovenia,

however the trend is moving towards settlement in the vicinity of larger cities. Ljubljana, the capital of Slovenia, had 267,760 inhabitants in 2008, which is a little above 13 % of the entire population.

2.3 Geographic Profile

Slovenia is located in central Europe with geographic coordinates of approximately 46° north latitude and 15° east longitude. The surface area of the territory is 20,273 km2. It borders Italy, Austria, Hungary and Croatia, with whom it has the longest state border. Despite its small size, Slovenia is a very diverse country with three distinct types of landscape. To the north there are the mountain ranges of the Julian Alps, the Karavanke Mountains and the Kamniško-Savinjske Alps which gradually slope down to the Adriatic Sea towards the south. The hilly central part with its numerous valleys and basins, including the Ljubljana basin where the capital of Slovenia is located, is separated from the Adriatic Sea by the northernmost slopes of the Dinaric Mountain Range. In the northeast the country flattens out onto the Pannonian plain. The length of the coast is 46.6 kilometres. The variability of the terrain is illustrated by the average inclination of 25 %. The average altitude is 550 m.

Figure 2.3.1: Shares of individual categories of ground cover (%) of the total surface, 2005



Source: SORS[2]

Terrain diversity, climate and pedological variety, large forests and the preservation of traditional ways of managing parts of the cultural landscape are the reasons for the high biodiversity, which is endangered due to potential climate change.
3000 ferns and flowers grow in Slovenia, along with 50,000 different animal species. Concern for preserving biodiversity is also evident in the increased number of protected areas. In 2008,

[2] Forests: Commercial forests, protective forests, tree nurseries, bush, arboreal parks in urban areas, reclaimed areas; Total agricultural land: meadows, pastures, permanent and annual plantations, grass surfaces not used for agricultural purposes, marshes; Open areas: rocks and scree, non-overgrown river banks, construction sites, landfi lls, quarries; Waters: rivers, lakes, reservoirs, industrial pools, saltpans; Developed areas: buildings with courtyards, gardens, parking lots, warehouses – defined by adding a circle with the radius of 20m around centroids, built-up areas between surfaces and by them defined with the assistance of centroids, determined by photo-interpretations of SPOT 1997 satellite data; Railways: – railways; Roads: national and main local roads.

the following areas were protected: 1 national park, 3 regional parks, 44 landscape parks, 1 integral natural reserve, 56 natural reserves and 1191 natural monuments. 256.120 hectares of land are protected, which presents 12.63 % of Slovenia's territory. Since 2003, the protected areas increased by more than 1.5 %.

Furthermore, 35.5 % of Slovenia's territory was included in the Natura 2000 areas, of which 26.3 % is already incorporated in the protected areas. Natura 2000 is a European network of Special Protection Areas declared in the Member States of the European Union with the main objective of preserving biodiversity for future generations. Special Protection Areas are intended for the preservation of animal and vegetation species and habitats which are rare or endangered at the level of Europe due to human activities.

2.4 Climate

Slovenia’s climate is extremely diverse. Near the coast, the prevailing type of climate is sub-Mediterranean, in mountains Alpine, while a continental climate prevails in the flat parts of eastern Slovenia. The above mentioned climate types interact and together with local influences form a wide range of local climatic conditions. In the bulletin Our Environment, the Environmental Agency of the Republic of Slovenia reports promptly on a monthly basis on the development of climate conditions, deviations from the long-time average, dangerous and extraordinary weather and climate events.

2.4.1 Temperature

The temperature conditions aren't only influenced by altitude, but also by the inclination and orientation of the terrain. In the closed valleys and basins, a frequent feature in the colder half of the year are also lakes of cold air with temperature turns. July is usually the warmest month and August in the mountains. January is usually the coldest month and February in the mountains. The largest daily temperature range and seasonal temperature changes are noticeable in regions with a continental climate – in the eastern part of the country.

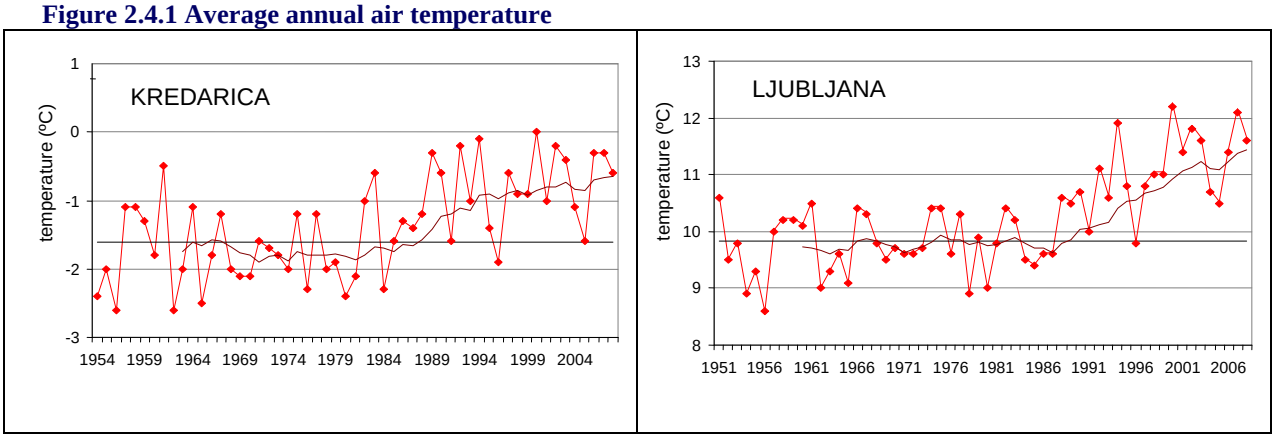
The coastal area (coast, Vipavska valley, Brda) is the warmest, with an average annual temperature exceeding 12°C. The average annual temperature is between 10 and 12°C in other coastal areas and lower-lying regions of eastern Slovenia, and between 8 and 10°C in lower-lying regions of central Slovenia. The coldest regions are the mountains where at the highest peaks the temperature doesn't exceed 0 °C. The average annual temperature drops every 1000 m by 5.3 °C.

If we compare individual decades in the period 1971-2000, the first decade (1971-1980) was the coldest. The second decade doesn't indicate any noticeable changes; however, they can be detected in the last decade (1991–2000). Increase of the average temperature is also clearly reflected in spot meterings. In the predominant part of the country, the average temperature in the 30-year period increased by app. 1.5 °C; a higher increase is observed in larger towns, and a smaller one in the coastal region. The average temperature has been increasing the most during the summer, while during the winter there aren't any stronger temperature changes in the lower-lying regions; in the mountains region, there is no characteristic increase of temperature in autumn. It is possible to notice an increase in the number of hot days and a decrease in the number of cold days.

Summers are hot in lower-lying regions and sometimes humid as well. Winters are mild along the coast and quite cold elsewhere, in mountains due to the height, in lower-lying areas due to frequent temperature inversions accompanied by fog. From the middle of the 1980s on, above-average warm years have been very common, and the majority of the warmest years starting from the middle of the last century occurred in the last few years. In the last few years the summer heat waves have been appearing earlier, usually as soon as the end of spring.

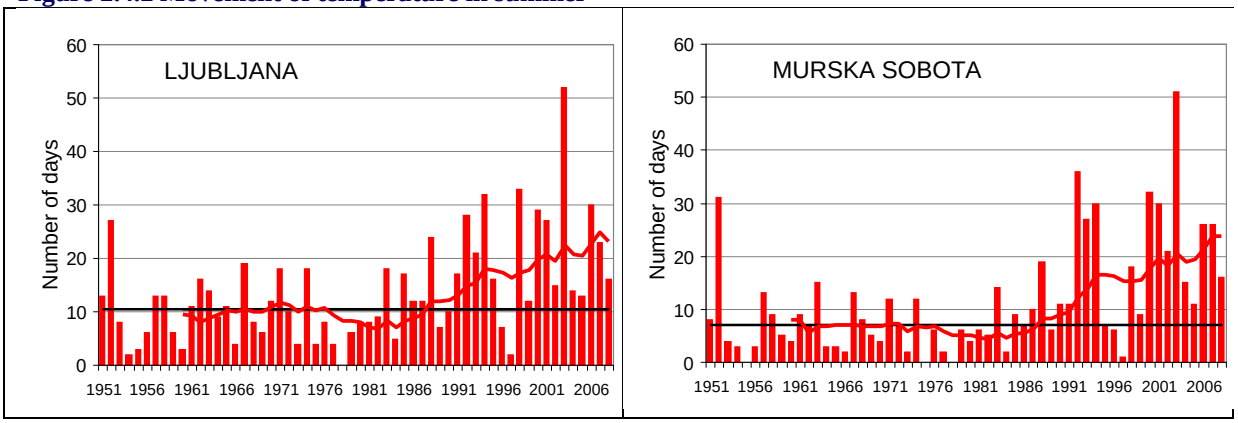
The summer of 2003 was extremely hot; one would not expect summer to be that hot with respect to the usual temperature variations, and July and August stand out as exceptional months; with record monthly temperatures recorded in several places. Agriculture suffered from severe drought, while there were also problems due to the small discharge of rivers and the decrease of the level of groundwater in the South-Eastern part of the country. Extraordinary cases were the warm and relatively dry autumn of 2006, the record-mild winter of 2006/7 that was characterised also by a meagre snow layer, and the warm spring of 2007. The period September 2006 – August 2007 was so far the warmest 12-month period. Furthermore, the cold and snowy winter of 2005/6 proves that the heating of the atmosphere is not even, while variability is increasing as well. This was demonstrated in June 2006 which started with unusually cold and rainy weather, and developed into a heat wave in the second part of the month.

Figure 2.4.1 Average annual air temperature



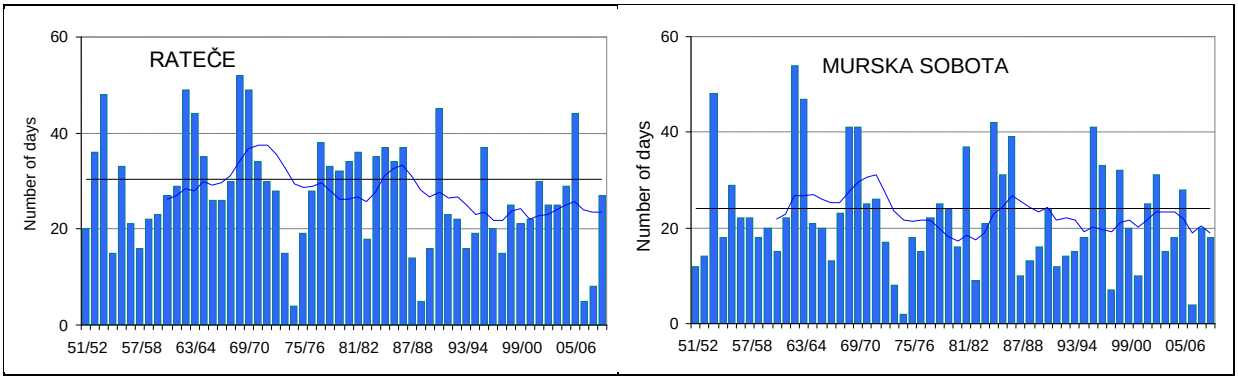
Levels of average annual air temperature in the period 1951-2008, 10-year floating average (thick lines) and average of the comparative period 1961–1990 (black line)

Figure 2.4.2 Movement of temperature in summer



Number of hot summer days (red columns), 10-year floating average (red line) and average of the comparative period 1961–1990 (black line) when the climate change wasn't as noticeable; period 1951–2008

Figure 2.4.3 Movement of temperature in winter



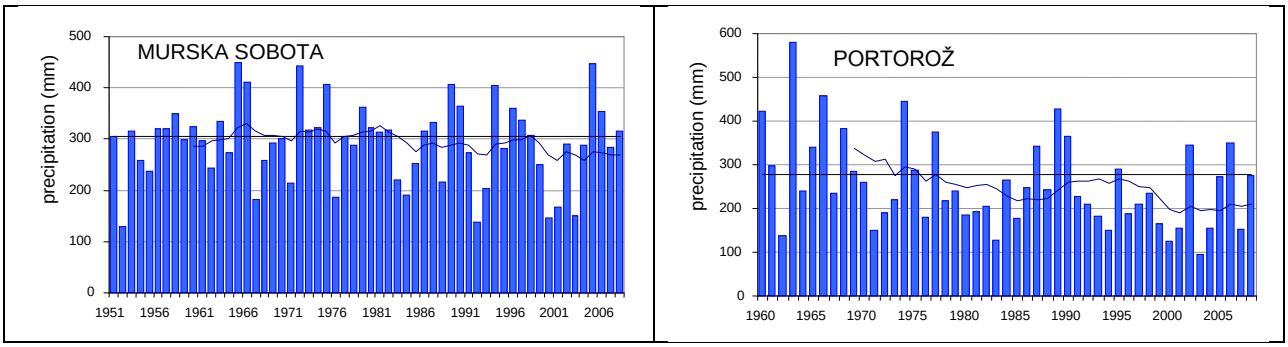
Number of winter icy days in the period 1951−2008, 10-year floating average (blue line) and average in the period 1961–1990

2.4.2 Precipitation

Precipitation distribution in Slovenia indicates a high level of spatial and seasonal variability, which is the consequence of the geographic position of Slovenia, the variability of its terrain and the characteristics of the individual climate types. The maximum annual precipitation is in the northwest in the Julian Alps, where annual precipitation can exceed 3000 mm, the second, somewhat lower, is in the Kamniško-Savinjske Alps, and the third is in Pohorje. In the Prekmurje regions, the influence of a continental climate is extremely strong; the annual precipitation doesn't exceed 900 mm. On the coast, the annual precipitation is between 1100 and 1200 mm. The annual distribution of precipitation is dependent on the prevailing climate type. On the coast, there are two typical precipitation maximums: the first at the end of spring, and the other in autumn. The majority of precipitation in the Alps is in autumn, while a less obvious maximum is typical for late spring and the beginning of summer. In the eastern part of the country, the maximum amount of precipitation is in summer, while the winter months are the driest.

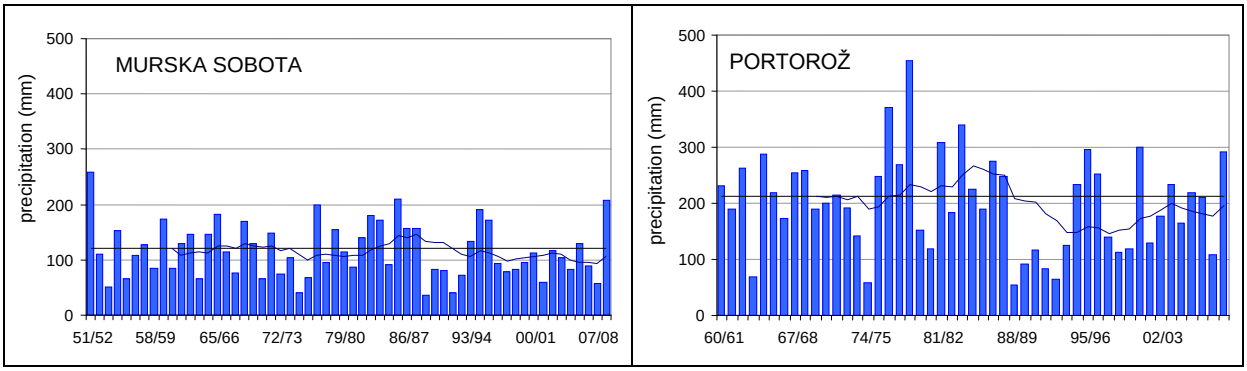
The precipitation may vary strongly from year to year. 1971 and 1983 were extremely dry, while 1979 was extremely wet; noticeable also are large regional differences in the appearance of dry and wet years as well as shorter periods. On the basis of data sets for previous years, we can determine that the precipitation in autumn has been increasing throughout the country. During the winter we can detect a decrease in the entire western part of Slovenia and the regions of Koroška and Pohorje, while there aren't any changes in winter precipitation in the eastern part of the country. A relatively uniform trend of the decrease of precipitation is noticeable in the entire country with the exception of the north-eastern part. There is less precipitation everywhere in the summer. The autumn maximum has been becoming more prominent, while the precipitation has been decreasing during other months.

Figure 2.4.4 Summer precipitation and 10-year average



Summer precipitation and 10-year average (blue line) and average in the comparative period 1961–1990 (black line)

Figure 2.4.5 Winter precipitation and 10-year average



Winter precipitation and 10-year average (blue line) and average in the comparative period

The highest number of precipitation days is in May, June and July when the atmosphere is mostly unstable and smaller showers and storms are more frequent. The diversity of frequency of very strong precipitation when the daily precipitation exceeds 50 mm is far bigger. In the north-western part of the country, there are more than 16 such days on average, while in the eastern part of the country there are on average less than two days with such strong precipitation. This is most frequent in October and November. Precipitation events causing damage may also be long-lasting. The last third of 2000 was such a case, which was extremely warm and wet. The majority of precipitation fell in the Posočje region, which is otherwise usual for this season. In upper Posočje 4-times more precipitation than usual fell in November 2000. In European terms, Slovenia is among the areas with the highest number of storms. Each year these include several severe thunderstorms, during which more than 100 mm of precipitation may fall within one hour. Extreme daily precipitation may exceed 400 mm in the Posočje region. In 2005, torrential flooding caused major local damage on several occasions due to the intensity of precipitation.

The other extreme is drought. Longer periods of drought appear in Slovenia at the end of winter and in spring; however, summer droughts are much more problematic due to faster evaporation. Agricultural drought in Slovenia is part of the natural variability of the climate. Although the phenomenon of drought is not new, the frequency of dry years has increased recently. Surprising is the fact that drought in the growth period has also been appearing successively. The worst summer droughts so far occurred in 2001 and 2003, which caused a great deal of damage to agriculture, and in places threatened sources of drinking water. Summer droughts in 1992, 1993 and 2000 were also of catastrophic proportions, and at the coast droughts usually occur every summer. In the summer of 2004, drought occurred only in

the south-western part of the country, while precipitation in the summer of 2005 exceeded the average based on many years almost all over the country. A reminder of the hot and dry early summers of 2006 and 2007 is still alive. We will remember 2008 primarily due to its severe summer thunderstorms with strong wind and hail; it was warmer than the annual average (1961-1990) and abundant with precipitation in comparison with the past years. The water balance in the ground was also positive in the growth period, from April to October; the only exceptions were the coastal regions and the north-eastern part of Slovenia, where water in the ground was sometimes lacking. The summer of 2009 will be remembered by strong summer thunderstorms that had primarily affected the eastern part of the country.

2.4.3 Solar radiation

During the summer months there is more sun in the coastal region, lowlands and basins due to convection in the hilly terrain; therefore, there are consequently more clouds. A reverse situation occurs in the colder half of the year. With the exception of the coastal regions, there is less sun in valleys and basins than in the hilly regions; namely, fog and low cloudiness are frequent due to the formation of lakes of cold air in basins and valleys.

2.4.4 Glaciers as indicators of climate change

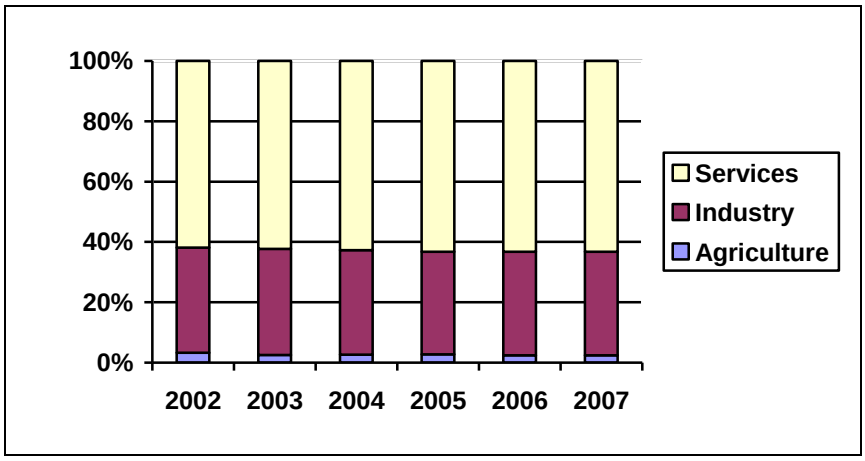
Glaciers are obvious indicators of climate change; namely, they respond to precipitation, temperature, solar radiation and wind. Both glaciers in Slovenia are highly sensitive to climate change due to their low altitude. The Triglav glacier had greatly reduced at the end of the extremely hot summer of 2003, while it recovered in the following years. In autumn 2006, the glacier (app. 0.7 hectares) came close to its status of 2003 when its surface area was 0.7 hectares; in 2007, it achieved its smallest surface area so far – 0.6 hectares. Its depletion has been continuing. The glacier under Skuta has been reducing as well.

2.5 Economic Development

After the year 2000, economic growth oscilated between 2.8 and 4.5 %; in the years 2006 and 2007 it was accelerated so that in 2007 it already reached 6.8 %. However, as a consequence of the global financial crisis, the economic growth decreased, and in 2008 it amounted to 3.5 %, which was almost a half lower than in 2007. The most important growth factors are the export and investment activities. In 2007, the gross domestic product in current prices amounted to 34,568 mil. EUR or 17,123 EUR per capita. In 2007, the highest share of added value was created by services at 62.9 %, followed by industry (including mining, electricity, gas and water supply and construction) at 34.6 %, and agriculture at 2.5 %.

Since 1995, the share of services in added value increased by 2.3 percentage points until 2004, and from 2004 to 2007 by another 0.1 percentage points. From 1995 to 2004, the shares of industry and agriculture decreased by 0.6 and 1.7 percentage points respectively; by 2007, the share of industry increased by 0.1 p.p., and the share of agriculture decreased on by a further 0.2 percentage points.

Figure 2.5.1: Shares of sectors in the GDP added value



Source: SORS

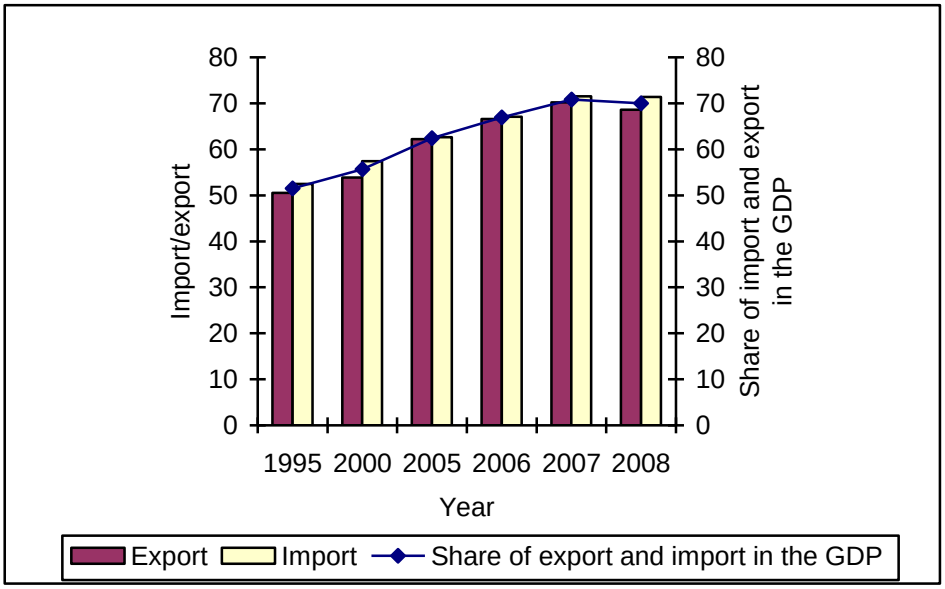
On 1 January 2007, Slovenia adopted the euro as the national currency. For entry into the EMU area, Slovenia had to comply with certain criteria of convergence (Maastricht criteria) that refer to the achieving of a low inflation rate, healthy public finances, low interest rate, stability of the currency rate, etc. After entry into the EMU, the rate of inflation increased in 2007 to 5.6 % primarily due to high economic growth, while in 2008 it dropped to 2.1 % as a result of the decrease of economic growth and a decrease in oil, food and raw materials on the world financial markets.

From 1991 to 2004, the rate of unemployment (according to ILO) in Slovenia fluctuated between 6 and 9%, and by 2008 it gradually decreased; in 2008 it amounted to only 4.4 %. However, the slowdown of economic growth in the second half of 2008 also caused the increase in the number of registered unemployed.

Slovenia as a small free-market economy is highly involved in international economic currents, owing to which any sort of economic or political changes outside of Slovenia have direct and indirect effects on its economy and international competitiveness.

Upon joining the EU Slovenia adopted the common foreign trade policy of the EU. The average share of trade in goods and services in GDP in 2008 amounted to 69.2 %, which is 1.2 % less than a year before, and 13.5 % more than in 2000. The share of foreign trade with regard to the GDP in the period from 2000 to 2007 strengthened from 55.7 % to 70.4 %. The most important import and export partner of Slovenia in 2007 remains the EU-27, followed by other European countries and then non-European countries.

Figure 2.5.2: The average share of foreign trade (export and import)1 in GDP in Slovenia and EU, in %



Sources: Development report 2009. (2009). Ljubljana: IMAD.[3]

2.6 Energy

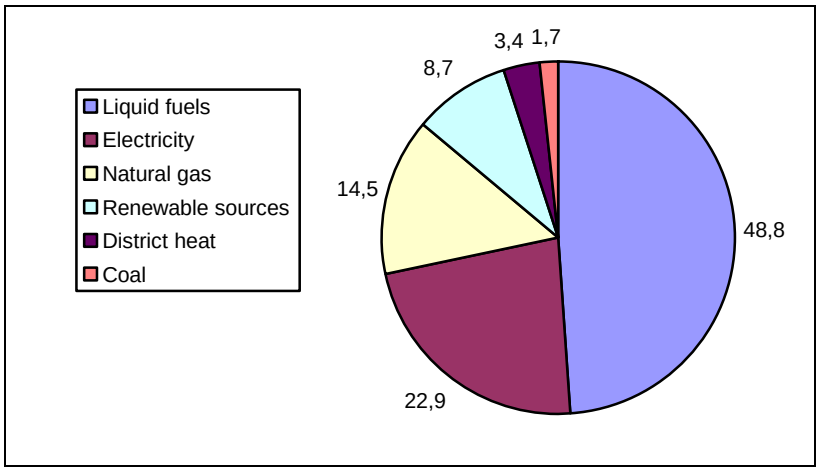
2.6.1 General

Total consumption of primary energy in 2007 amounted to 7.34 Mtoe and was 0.25 % higher than in 2006; in the period 2000-2007 it has increased on average by 2.1 % annually.

The increase in the consumption of final energy in 2007 was negative (-1.2 %). The average annual growth for the period 2000-2007 amounts to 1.5 %. The decrease of growth is a result of a smaller use of liquid fuels, natural gas, district heat and renewable energy sources.

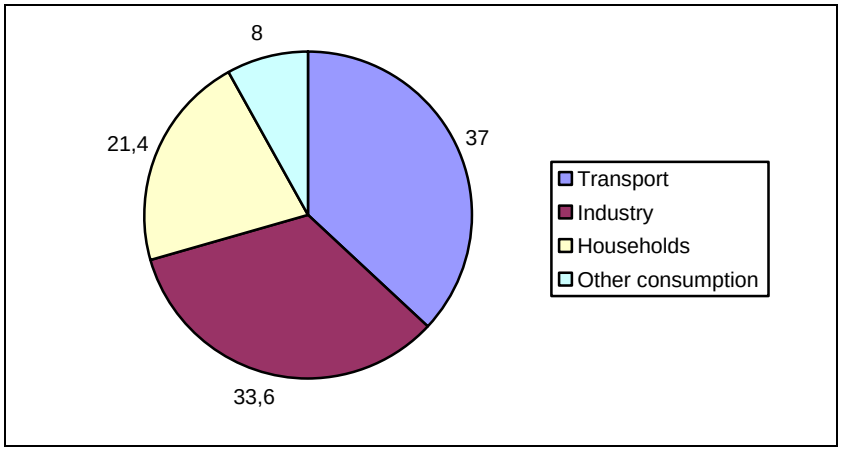
[3] Balance between the average value of the total export and import according to the balance of payments statistics and GDP in current prices.

Figure 2.6.1: The structure of consumption of final energy in 2007 (%)



Source: ME

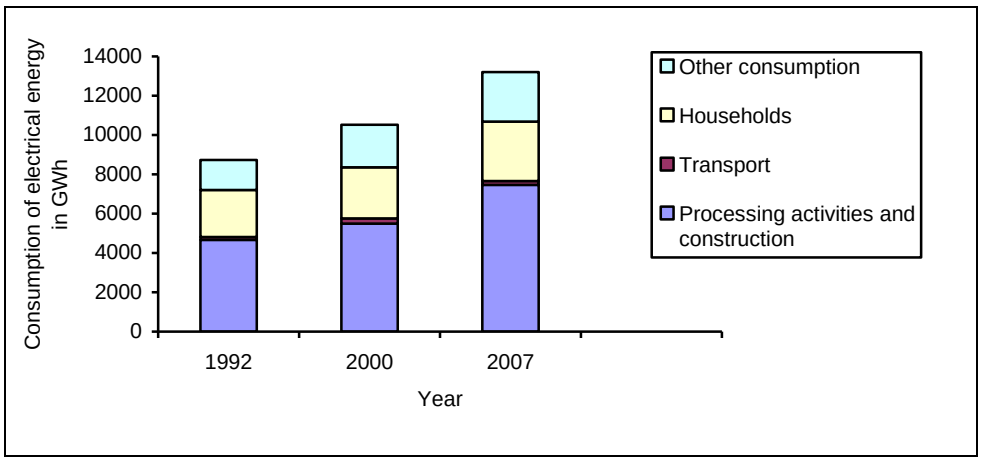
Figure 2.6.2: Sectoral distribution of the consumption of final energy in 2007 (%)



Source: ME

Consumption of electrical energy. Indicators on the consumption of electrical energy for 2007 show that the high growth of consumption of electrical energy, typical for the period 2000-2006, has been settling down.

Figure 2.6.3: Consumption of electrical energy by sectors



Source: SORS

2.6.2 Energy intensity

The key developmental challenge of Slovenian energy remains the high energy intensity. The indicator of energy intensity measures the consumption of energy at the creation of product unit (added value), and indicates the structure and efficient consumption of energy by the economy. Energy intensity in Slovenia has been improving; progress in 2007 is more favourable than in the long-lasting period. In 2007, the energy intensity of the consumption of primary energy improved with regard to the previous year by 6.1 % (in the period 2000-2007, it has improved on average by 2.3 % annually), while the intensity of the consumption of final energy improved in the last year by 7.5 % (in the period 2000-2007, it has improved in average by 2.8 % annually).

2.6.3 Reliability

Dependency of the state on the import of energy was in 2007 by 52.7 % less favourable than in the previous two years (52.1 % in 2006). The fluctuations appear due to hydrological conditions. In the long-term, the import of solid and liquid fuels as well as electrical energy has been increasing, so that Slovenia has become a net importer of electrical energy. The import structure of energy has not been changing significantly. Slovenia entirely imports liquid fuels, 99.7 % gas, and 21 % solid fuels. By sectors, the import dependency is the highest in transport – 98.4 %, followed by heat for heating – 65.1 %, and processing activities by 57.5 %. The energy consumption as well as the import of energy products in Slovenia has been increasing.

2.6.4 Sustainable energy development

In Slovenia, the share of the use of renewable energy sources is relatively high; however, since 2000 the trend has been decreasing, and in 2007 it decreased as well. According to the last available data of the SORS, the share of renewable sources in the total consumption of energy in Slovenia amounted to 10.0 %. In the period 1995-2000, the share of renewable sources had increased, and in the period 2000-2006 decreased by 1.8 %. In the last six years, energy consumption in Slovenia has increased by 14.2 %, while the use of renewable sources even decreased by 2.5 %. The decrease and fluctuations of the use of renewable sources are primarily a result of less water power production due to the frequent appearance of dry periods and the slow construction of new capacities that does not follow the growth of energy consumption.

In Slovenia, the share of biomass and waste in renewable energy sources amounted to 62.4 % in 2007 (the fastest growth of biofuels; however, still a low share, under 1.8 % of RES), while relatively higher than in the EU was the share of water power, which amounted to 37.6 %. Other renewable sources in Slovenia have not been appropriately statistically incorporated.

The share of renewable sources in the production of electrical energy has additionally decreased in 2007 after stagnation in the previous two years. Despite the low growth of the consumption of electrical energy in 2007, the share of renewable sources in the consumption of electrical energy decreased to 22.1 %. The decrease was primarily a result of less hydroelectric power plant production, almost by one tenth. On the other side, there was an increase in the production of electrical energy from biogases, landfill gases and gases from purification plants as well as solar energy, which otherwise present a smaller share of the produced electrical energy from RES. In 2000, the share of the production of electrical energy from renewable sources in the consumption of electrical energy had already amounted to 31.7 %. Since then the trend has been decreasing and has fluctuated primarily in accordance with

the frequent appearance of dry periods. The lowest trend was indicated in the years 2007 and 2003.

The EU set ambitious objectives in order to increase the share of renewable sources. In the new directive on the use of renewable sources, it is stipulated that Slovenia should increase the use of renewable sources from the existing 16 % to 25 % of the consumption of final energy in 2020. These ambitious objectives shall naturally demand a more active policy of promoting the use of all potential renewable energy sources. There are various estimates on the economic useabiliy of the renewable energy potential. Analyses for Slovenia indicate that in water power we used a little under 60 % of the economic potential, and less than 80 % of the ecologically acceptable potential.

2.6.5 Environment

Greenhouse gas emissions of energy are increasing. In 2006, the growth amounted to 0.6 %, and in 2005 to 1.9 %. The result is that emissions from 2006 were higher than the base emissions by 2.7 %. In order to achieve the Kyoto commitment, highly problematic are transport emissions which have increased by 25 % in the last seven years. Emissions of the energy sector and largely also of industry, which have also been increasing, are limited by quotas that were allocated within the framework of the greenhouse gas emission allowance trading scheme.

2.7 Transport

The amount of road cargo and automobile traffic is increasing. The increase is the consequence of a higher number of vehicles and the increased average number of kilometres driven. The number of passenger kilometres in public road transport is decreasing. Due to its location, Slovenia is highly exposed to transit traffic, which makes up a substantial share especially of cargo transport. These trends entail the growth of greenhouse gas emissions. The number of vehicles per inhabitant in Slovenia has increased steadily in the past decade. The number of registered personal vehicles per thousand inhabitants increased from 289 to 501 in the period from 1990 to 2007.

Due to lower prices of motor fuels, lower parking costs and poor development and even cancellation of routes, public road transport decreased from 1990 to 2003 from 6440 to 1065 million passenger kilometres (figures do not include taxis and chartered buses). The decreasing trend of public road transport has continued also in 2007, when it dropped to 817 million passenger kilometres. The reduction of rail passenger traffic after 1990 (1429 m pkm) that was the consequence of economic recession and the break-up of the former Yugoslavia has ceased, and has been increasing – in 2003, it achieved 777 m pkm, and in 2007 812 pkm. The situation in air transport is similar to that of rail transport.

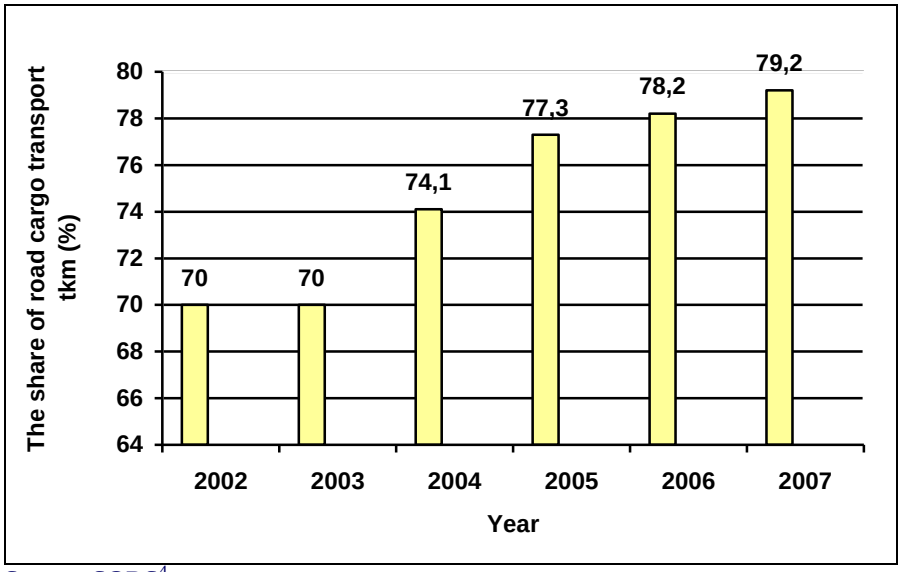
For Slovenia it is typical that the inhabitants use personal vehicles for personal transport; therefore, the share of transport by personal vehicles in total land passenger transport amounted in 2007 to 85.8 % pkm.

The high growth of cargo transport in Slovenia was as a consequence of its geographical location and the openness of its economy in recent years additionally initiated by high international trade in goods. The scope of road cargo transport per capita is among the highest

in the EU. This is also a consequence of the favourable geographical location of Slovenia that is at the crossing of the European corridors V and X, where transport has strongly increased with the last two expansions of the EU. Furthermore, many administrative barriers for Slovenian transport operators for transport in EU countries have been cancelled with entry into the EU (primarily the obtainment of the limited number of permissions); our state has also negotiated the possibility of performing cabotage in the EU-15 states, which was enabled to other new members at that time only after the expiry of the five-year transitional period. Slovenia as a small central European country also has an expectedly high share of rail cargo transport and a lower share of internal cargo transport. A strong increase in road and rail cargo transport was in 2007 also additionally initiated by high economic growth in the domestic and international environment, especially in eastern Europe. The increase in cargo transport was in Slovenia 3.5-times higher than economic growth: in the period 2003-2007 the average annual GDP growth was 5.3 %; on the other hand, the annual growth of road cargo transport was 18.2 % and 4.5 % for rail transport,

The share of road cargo transport has also been increasing in the total land cargo transport; in 2007, it amounted to 79.2 % (tkm) in the total land cargo transport, while in the first three quarters of 2008 it increased to 82.0 %.

Figure 2.7.1: The share of road cargo transport in the total land cargo transport, tkm (%)



Source: SORS[4]

The consumption of energy in transport doubled in 2007 following high growth in the previous two years, and has strongly exceeded the average annual growth in the period after 2000. In the period 2000-2006, the average annual growth was 4.1 %, and 12.8 % in 2007. Such movements are a result of high economic growth in Slovenia and in other countries; besides domestic cargo transport, this has also influenced higher transit cargo transport through Slovenia. The transport of foreign transport operators presents a large share of cargo transport in Slovenia, which is not included in the statistical data of cargo transport. Analyses of toll stations in Slovenia have indicated that the share of foreign cargo vehicles amounts to 53 % of all transitions of toll stations, which largely represents transit transport (recorded cargo vehicles in the period from 19 April 2008 to 26 April 2008, and from 4 May 2008 to 11

[4] The data for road cargo transport refer only to the road cargo vehicles registered in the state.

May 2008 through toll stations in the entire territory of the Republic of Slovenia, MCRS). This was additionally initiated by the low level of tolls for motor vehicles in comparison with the neighbouring countries, while the high growth of fuel sales was also a result of the lower level of prices of these fuels in Slovenia in comparison with the neighbouring countries since 2005.

In 2007, the greenhouse gas emissions of transport have strongly increased. According to temporary data, the total greenhouse gas emissions increased in 2007 by 0.7 %, which presented a 1.8 % increase in comparison with the base year emissions (1986). The growth was the lowest since 2000 (with the exception of 2003 when such emissions decreased); however, due to the extremely high growth of transport emissions (12.5 %), the share of these emissions increased by 3 percentage points to 26.1 %.

2.8 Industry

In 2008, the sale of industrial products and services was, for the first time after a lengthy growth period, smaller by more than 2 % with regard to 2007; 66 % of industrial products were sold in foreign markets. In the period 2004 to 2007, industrial manufacturing has been increasing annually from 8 to 12 %. The highest level of manufacturing was of processing activities, followed by electricity, gas and water supply, and mining. The highest sales among the processing activities were achieved by the manufacturing of chemicals, chemical products and synthetic fibres, manufacturing of metals and metal products, manufacturing of machines and equipment and manufacturing of vehicles and vessels. The level of manufacturing decreased the most in the tanning, wood processing and the furniture industry. In the period 2006-2008, the emission-intensive industries have again grown faster than the remaining processing activities. The total scope of the manufacturing of emission-intensive industries, the industry of activities that are according to the intensity of harmful emissions (in air, water, soil) per product unit the worst, has been increasing in Slovenia since 1999 faster than the remaining industries of processing activities. In 2008, the growth of the scope of manufacturing in the indicated activities was by 5.1 percentage points higher than the average in the remaining processing activities.

In 2008, the highest share of the sale of industrial products and services in the area of processing activities was achieved through the manufacturing of motor vehicles, trailers and semi-trailers; namely, 12 %, followed by metal manufacturing by 10 %. The smallest share of sales in processing activities was achieved by the manufacturers of other vehicles and vessels. The highest share of revenues on foreign markets was generated by the manufacturers of pharmaceutical raw materials and preparations, and manufacturers of other vehicles and vessels.

In the period 2000 to 2007, the share of the consumption of final energy in processing activities increased by 1.4 percentage points. It is favourable that the reduction of energy intensity in processing activities in 2006 and 2007 strengthened after a five-year slowdown. After 2006, the consumption of final energy per added value unit had decreased; in 2006 by 4.6 %, and in 2007 by 9.2 %. This is primarily the result of the lower consumption of energy in the manufacturing of metals, fibres and paper (in the latter due to quality changes – smaller energy intensity – and also a smaller manufacturing scope). According to our estimations, the decrease in energy intensity continued also in 2008; namely, the production of primary aluminium decreased by 25 % due to the adaptation of manufacturing to the IPPC Directive.

Instead of 12 % of the total consumption of electrical energy in Slovenia, only 9 % were consumed in this area of manufacturing (decrease from 1.7 TWh to 1.2 TWh annually).

In the period 2000-2007, the average annual growth of the final consumption of electrical energy in processing activities and construction was 4.5 %, so that the consumption of electrical energy in processing activities in 2007 represented 57 % of the final electrical energy. The growth of the consumption of electrical energy in processing activities and construction amounted in 2007 to 0.4 %. In 2007, the consumption of electrical energy in processing activities has absolutely increased the most in the manufacturing of chemicals, chemical products and synthetic fibres, manufacturing of machines and equipment, manufacturing of vehicles and vessels and manufacturing of non-metal mineral products. On the other hand, the consumption of electrical energy has significantly decreased in the manufacturing of metals and metal products, and the manufacturing of food, beverages and tobacco.

2.9 Waste

2.9.1 Municipal waste

Municipal waste is the waste of households and other waste similar to households' waste by its nature and structure. The average amount of waste in 2003 was 418 kg/capita; it had increased to 439 kg/capital by 2007. Municipal waste represents approximately 15 % of all generated waste.

According to the data of the Statistical Office of the RS, the increasing of the amount of generated municipal waste from the previous period had also been continuing in 2007; in comparison with 2006, the amount of generated municipal waste increased by 2.3 %. Furthermore, the municipal and similar waste collected by public services increased by 1.8 % in comparison with 2006.

2.9.2 Industrial waste

According to the data on the assessment of environmental tax, 15 landfills operated by industry were recorded in 2000. According to the official records, 145 thousand tonnes of waste were deposited in landfills operated by industry in 2000; in 2002, the amount of deposited waste increased by more than 100 % (to 295.4 thousand tonnes). In the period 2003-2005, a decrease in the amount of deposited waste can be noticeable, including 2005 (210.6 thousand tonnes were deposited). After another increase in the amount of deposited industrial waste in 2006 – in total, app. 297 thousand tonnes of waste were deposited, generated in manufacturing activities, which is more than in 2003 – the amount of deposited waste decreased to 252 thousand tonnes of waste.

According to the waste type, inert, non-hazardous and hazardous waste is deposited in these landfills.

2.9.3 Waste management

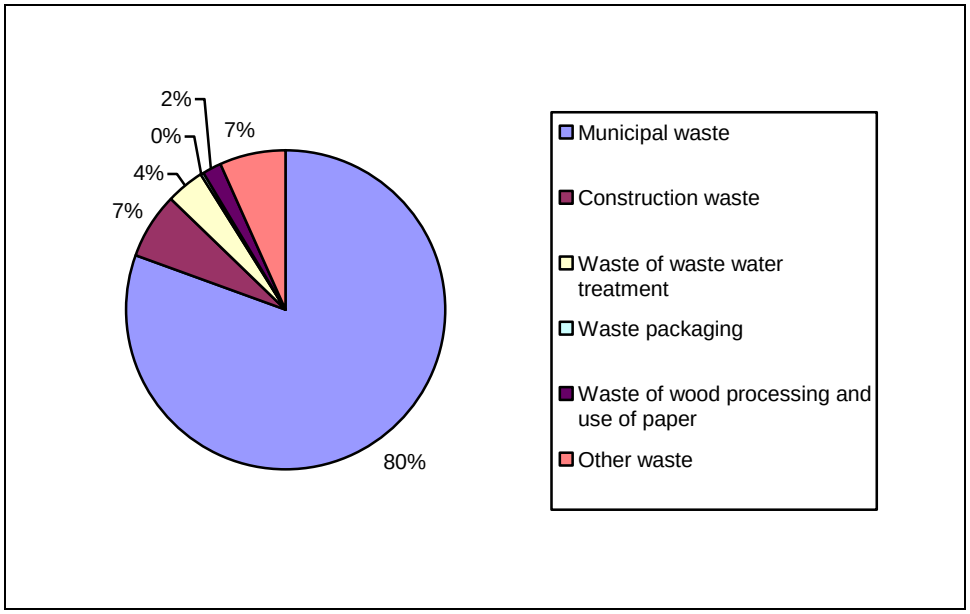
Although waste recovery has been increasing, the absolute amount of deposited waste has not been reducing. Namely, we still haven't managed to cut off the connection between the growth of the gross domestic product and an increase in the amounts of all types of waste. Furthermore, the recovery is so far available only for certain types of waste. In Slovenia, the most widely used method of removing municipal waste is still depositing. The share of

separately collected waste of all municipal waste collected by the public waste removal service amounted to 15.3 % in 2007. The share of separately collected waste has been increasing throughout the years; the share of separately collected waste packaging in municipal waste increased the most in 2006, and in 2008, the share of other separate fractions as well as biodegradable waste. This is a result of the establishment of the system of »ecological island«, where waste of households is collected separately. Consequently, the share of mixed municipal waste, hard to be reused or recovered, decreased. Among the individual fractions of waste collected by the public waste removal service, glass waste and discarded electric, electronic and other equipment increased the most in 2007. Despite the positive trend, Slovenia still has to make a step forward in the waste sector; namely, only half of the generated municipal waste packaging is collected separately. The situation is even worse regarding biodegradable municipal waste, where only one sixth is collected separately.

Since 2002, around 65 % of all generated industrial waste is being recovered. The recovery of industrial waste has been increasing; in 2006 it amounted to 69 %, and 76 % of industrial waste in 2007. Waste removed by other methods includes primarily fly ash used for the filling of mines and slag used as construction material. The balance for hazardous waste is similar as for industrial waste.

According to the data of the Statistical Office of the RS, the average structure of deposited waste in landfills that are public infrastructure was the following in 2007: municipal waste 80,5 %, construction waste 6,8%, waste of waste water treatment 3,9 %, waste packaging 0,2 %, 1,8 % waste of wood processing and use of paper as well as other waste 6,8%.

Figure 2.9.1: The average structure of deposited waste in landfills that are public infrastructure in 2007

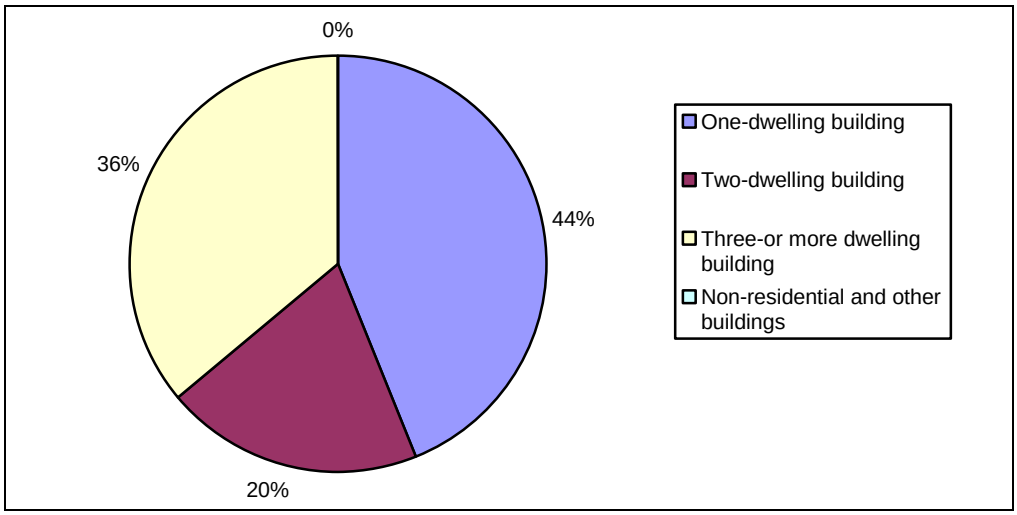


Source: SORS

2.10 Building Stock and Urban Structure

According to the data of the last population census in 2002, individual houses are the most common residential buildings in Slovenia, accounting for 60 % of all residential floor area. Housing is used only by one household in 97 %.

Figure 2.10.1: Inhabited housing according to the building type, Slovenia, population census 2002



Source: SORS, Census of Population, Households and Housing 2002.

The construction of housing in the period 1990-2008 has been constantly increasing, with slight stagnation periods in 1994, 1999 and 2003. In 2007, 16 % more residential units were under construction than in 2006, while in 2008, 4 % less residential units were under construction than in 2007. The average size of residential units built in 2008 measured approximately 110 m2; the average size of a residential unit in one-dwelling buildings measured approximately 170 m2, while the average size of a residential unit in a multi-storey building measured approximately 75 m2. 43 % of finished residential units have four rooms or more. As in the previous years, the majority of residential units finished in 2008 was obtained by new construction (97 %).

The consumption of final energy in households has decreased in the last four years, after an increasing period since 1998. The decrease was the highest in 2007, when it amounted to 9.3 %. In 2007, consumption was higher by 3.3 % in comparison with 1992, 7.1 % lower in comparison with 2000, and 11.6 % lower in comparison with 2005. The decrease in consumption was a result of the lower consumption of liquid fuels, which is probably a result of the implementation of measures for the efficient consumption of energy in buildings (additional isolation of buildings, change of windows, change of furnaces); in addition to the active policy in this area, this is most likely also the consequence of higher prices of liquid fuels.

2.11 Agriculture and Forestry

According to the Land use database of the Ministry of Agriculture, Forestry and Food, primarily the total scope of fields and gardens decreased in Slovenia in the period 2002-2007 by 15.4 %, hop fields by 16.3 %, overgrown land by 12.9 %, vineyards by 12.4 %, and other

land use by 20 %. The total surface of forests increased by 1.5 %, olive groves by 41.7 %, meadows by 6.9 % and extensive fruit plantations by 2.2 %.

A detailed analysis of changes in land use including all land that was transformed from other categories in the category of built-up and similar land (flows of changes) indicates that 19.712 hectares of land was built-up or urbanised in the period 2002-2007, which presents a 22.5 % increase in urban land. In this period in Slovenia, the most urbanised was agricultural land (65.2 %) and forests (24.4 %). Overgrowing of agricultural land has been continuing. The process is mostly intensive in hilly areas, areas with a less favourable relief and less appropriate ground characteristics.

The decreasing of agriculture in value added has been continuing. Since 2002 when it amounted to 2.9 %, it had decreased to 2.1 % in 2007.

The most important branch of Slovenian agriculture in 2003 was still animal husbandry, while the trend has turned to the benefit of plant production since 2004. In 2007, plant production represented 53.1 % of agricultural production, animal husbandry 45.2 % and agricultural services 1.7 %.

The consumption of mineral fertilisers in the period 1992-2007 in Slovenia decreased by 21.2 %. The decrease in consumption is noticeable primarily after 1999, since 180.000 tonnes of mineral fertilisers were used that year, and after 2005 already less than 150.000 tonnes were used. The consumption of mineral fertilisers per hectare of agricultural land in use decreased in the indicated period as well; namely from 342 kg/ha to 300 kg/ha, which is by 12.2 %.

Organic farms had begun to develop in Slovenia by the end of 1990's, while the first grants for such production were allocated in 1999. In 2001, support for organic farms was incorporated in the Slovenian agri-environmental programme that became part of the Rural Development Plan of the Republic of Slovenia after its entry into the EU. In 1999, organic farms cultivated 2.400 hectares or 0.5 % of all agricultural land in use. By 2007, organic farms had expanded to 29.332 hectares or 5.9 % of all agricultural land in use. The structure of agricultural land cultivated by organic farms is still dominated by grassland (88 % in 2007), which indicates that primarily animal husbandry holdings decided on a change to such production. In 2007, agricultural land covered 19.7 % of protected nature areas, while the majority of such areas was covered by forests (71.2 %).

According to the report of the Slovenian Forest Service, the forest surface in 2007 amounted to 1,183,252 hectares, which is 7.8 % more than in 1995. In 2007, forests covered 58.4 % of the territory of Slovenia. In the last number of decades, the hectare timber stocks and growth have been constantly increasing. The percentage of conifers and deciduous trees in timber stocks is nearly the same, at 47 % and 53 % respectively. Yearly felling of wood, however, is with regard to yearly growth too low. In 2007 it was only 68 % of the possible one. Better economic use of forests is being hindered by great fragmentation of forest property, poor technical equipment and poor capacity of private owners, and also their non-market orientation and week links among them. Larger felling would be sensible also fromthe point of view that wood is one of rare natural renewable sources of Slovenia.

3 GREENHOUSE GAS INVENTORY INFORMATION

3.1 Summary tables

CRF Summary tables for the period 1986–2007 and CRF trend tables are available in Annex B.

3.2 Descriptive summary

The total emissions of GHGs in 2007, sinks not considered, amounted to 20,722.18 kt CO_2 eq, which represents a 1.9% increase in emissions compared to the 1986 base year. In the period 1986–1991, a reduction in emissions was recorded due to economic conditions at the time and the Republic of Slovenia gaining its independence. In the late 1990s, the Slovenian economy faced a variety of shocks caused by the transformation of political and economic systems. The crisis was intensified by the loss of former Yugoslav markets. All this resulted in a fall in GDP, a fall in the employment rate and investments, and a high inflation rate. As early as 1993, the Slovenian economy began to revive, on average exceeding an annual growth rate of 4% between 1993 and 2000. Consequently, in the period 1992–1997, a strong increase in emissions was recorded. In the second half of that period, the increased emissions were a consequence of "gasoline tourism" (25% of the total sale of motor fuels in Slovenia), since the prices of motor fuels in Slovenia were appreciably lower than in neighbouring countries.

In the period 1998–1999, emissions decreased due to measures undertaken by neighbouring countries to curb "gasoline tourism" and due to the increased supply of electrical energy from the Krško Nuclear Power Plant. Between 2000 and 2002, emissions kept increasing again due to the increased obligatory export of electrical energy from the Krško plant to Croatia. Simultaneously, due to very dry and hot summers the consumption of electrical energy increased and the production of electrical energy by hydroelectric power stations in Slovenia decreased. As a result, thermal power plants had to make up for both the deficit in the production of electrical energy by hydroelectric plants and the increased consumption of electrical energy. In the period 2003–2007, the main source of emissions growth was the transport sector. Due to Slovenia's favourable geographical location and the enlargement of the European Union to the East, transit traffic through Slovenia increased drastically, with correspondingly much greater emissions from transport.

Table 3.2.1: GHG emissions and removals in Slovenia by sector and sub-sector, 1986–2007

GHG SOURCE AND SINK CATEGORIES	1986	1990	1995	2000	2005	2006	2007	Change 1986-2007 in %
TOTAL net emissions (with LULUCF) in Gg CO_2 eq	**18,750.359**	**15,385.694**	**13,808.984**	**13,736.341**	**14,946.877**	**15,836.871**	**14,947.830**	**-20.28**
1. Energy	**16,069.019**	**14,395.813**	**14,893.770**	**15,062.613**	**16,419.498**	**16,574.180**	**16,688.357**	**3.85**
A. Fuel Combustion	15,533.248	13,936.680	14,450.977	14,651.572	15,967.372	16,109.981	16,218.307	**4.41**
1. Energy Industries	6729.094	6265.483	5626.512	5497.869	6325.172	6378.658	6596.267	**-1.97**
2. Manufacturing Industries and Construction	4405.007	3119.402	2615.460	2269.430	2487.630	2589.796	2328.686	**-47.14**
3. Transport	2033.265	2742.230	3770.560	3832.359	4569.284	4796.972	5395.216	**165.35**
4. Other Sectors	2365.881	1809.564	2438.446	3051.914	2585.284	2344.554	1898.139	**-19.77**
5. Other	NA	NA	NA	NA	NA	NA	NA	**NA**
B. Fugitive Emissions from Fuels	535.772	459.133	442.793	411.042	452.127	464.200	470.050	**-12.27**
1. Solid Fuels	479.145	401.188	388.265	367.823	419.139	432.562	439.369	**-8.30**
2. Oil and Natural Gas	56.627	57.945	54.528	43.219	32.988	31.638	30.681	**-45.82**
2. Industrial Processes	**1288.059**	**1292.156**	**1109.470**	**970.143**	**1185.689**	**1217.449**	**1225.492**	**-4.86**
A. Mineral Products	765.643	699.603	541.768	598.642	631.723	670.673	703.388	**-8.13**
B. Chemical Industry	48.697	40.094	30.759	33.437	52.206	51.647	40.519	**-16.79**
C. Metal Production	463.478	542.156	496.464	291.199	387.296	364.241	331.833	**-28.40**
D. Other Production	NA	NA	NA	NA	NA	NA	NA	**NA**
E. Production of Halocarbons and SF_6	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	**NA**
F. Consumption of Halocarbons and SF_6	10.241	10.303	40.479	46.865	114.464	130.889	149.752	**1362.26**
G. Other	NA	NA	NA	NA	NA	NA	NA	**NA**
3. Solvent and Other Product Use	**81.903**	**43.400**	**17.251**	**42.729**	**43.320**	**44.153**	**42.160**	**-48.52**
4. Agriculture	**2334.296**	**2242.726**	**2117.364**	**2162.344**	**2005.802**	**2029.216**	**2082.082**	**-10.80**
A. Enteric Fermentation	765.086	730.900	692.960	700.979	655.626	654.888	684.378	**-10.55**
B. Manure Management	778.080	766.294	664.555	651.325	603.852	614.509	633.390	**-18.60**
C. Rice Cultivation	NO	NO	NO	NO	NO	NO	NO	**NA**
D. Agricultural Soils	791.130	745.532	759.848	810.041	746.324	759.820	764.315	**-3.39**
E. Prescribed Burning of Savannas	NO	NO	NO	NO	NO	NO	NO	**NA**
F. Field Burning of Agricultural Residues	NO	NO	NO	NO	NO	NO	NA,NO	**NA**

G. Other	NO	NO	NO	NO	NO	NO	NO	**NA**
GHG SOURCE AND SINK CATEGORIES	**1986**	**1990**	**1995**	**2000**	**2005**	**2006**	**2007**	**change in %**
TOTAL net emissions (with LULUCF) in Gg CO_2 eq	**18,750.359**	**15,385.694**	**13,808.984**	**13,736.341**	**14,946.877**	**15,836.871**	**14,947.830**	**-20.28**
5. Land Use, Land-Use Change and Forestry (LULUCF)	**-1589.253**	**-3185.747**	**-4905.241**	**-5175.161**	**-5430.370**	**-4733.091**	**-5774.354**	**263.34**
A. Forest Land	-1589.253	-3185.747	-4905.241	-5175.161	-5430.370	-4733.091	-5774.354	**263.34**
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	NA,NE,NO	**NA**
C. Grassland	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	**NA**
D. Wetlands	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	**NA**
E. Settlements	NE	NE	NE	NE	NE	NE	NE	**NA**
F. Other Land	NE	NE	NE	NE	NE	NE	NE	**NA**
G. Other	NE	NE	NE	NE	NE	NE	NE	**NA**
6. Waste	**566.335**	**597.347**	**576.371**	**673.672**	**722.936**	**704.964**	**684.093**	**20.79**
A. Solid Waste Disposal on Land	298.801	345.110	376.469	438.924	486.453	476.326	453.352	**51.72**
B. Waste-water Handling	267.534	252.237	199.902	234.748	236.483	228.638	230.741	**-13.75**
C. Waste Incineration	NO	NO	NO	NO	IE	IE	IE	**NA**
D. Other	NA	NA	NA	NA	NA	NA	NA	**NA**
7. Other	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items:								
International Bunkers	**98.366**	**79.970**	**58.048**	**71.726**	**65.154**	**179.012**	**274.700**	**179.26**
Aviation	98.366	79.970	58.048	71.726	65.154	74.140	98.159	**-0.21**
Marine	NA	NA	NA	NA	NA,NO	104.871	176.541	**NA**
Multilateral Operations	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
CO_2 Emissions from Biomass	**2253.739**	**2087.742**	**2028.949**	**1877.433**	**2303.259**	**2045.136**	**2045.136**	**-9.26**
Total CO_2 Equivalent Emissions without LULUCF	**20,339.612**	**18,571.441**	**18,714.225**	**18,911.502**	**20,377.247**	**20,569.962**	**20,722.184**	**1.88**
Total CO_2 Equivalent Emissions with LULUCF	**18,750.359**	**15,385.694**	**13,808.984**	**13,736.341**	**14,946.877**	**15,836.871**	**14,947.830**	**-20.28**

3.2.1 Description and interpretation of emission trends by gas

CO_2 emissions in 2007 represented 82% of overall emissions of greenhouse gases. CO_2 emissions followed the consumption of energy and with regard to their fraction exerted a major influence on total emissions. Compared to 1986, in 2007 they increased by 4.3%. CH_4 emissions represented 10.54% of total emissions in 2007 (11.7% in 1986) and were lower than in 1986 by 8.99.4%. N_2O emissions represented 6.4% of total emissions and were lower than N_2O emissions in 1986 by 4.1%. F-gases represent 1.2% of total emissions and some (HFCs and SF_6) have shown significant increases since 1995 (base year for F-gases).

Carbon dioxide – CO_2

CO_2 emissions in the period 1986–2007 may be split into five segments. In the first segment, 1986–1991, emissions diminished due to a reduction in industrial production and the war for independence in 1991. Emissions rose strongly in the 1991–1997 period, when emissions also increased due to gasoline tourism. Then came a short period of emission reduction as a consequence of a reduction in gasoline tourism and decreased consumption of fossil fuels for the production of electrical energy. After 1999, emissions again rose, mainly as a consequence of the production of electrical energy. CO_2 emissions in 2002 thus amounted to 16.23 Mt of CO_2, which is nearly the same as in the 1986 base year. However, in 2003, CO_2 emissions decreased by 1.1% (mainly due to lower emissions from Energy Industries), in 2004 increased by 2.3%, in 2005 by 2.2%, in 2006 by 1.1%, and in 2007 by 0.8%, mainly due to transport.
In that entire period of time, the strongest increase in CO_2 emissions was in transport, by as much as 165%, from 2.0 Mt CO_2 eq in 1986 to 5.4 Mt CO_2 eq in 2007.

Table 3.2.2: GHG emission trends by gas

GREENHOUSE GAS EMISSIONS	1986	1990	1995	2000	2005	2006	2007	Change from 1986 to 2007
	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	(%)
CO_2 emissions including net CO_2 from LULUCF	14,703	11,558	10,102	10,036	11,240	12,121	11,215	**-23.73**
CO_2 emissions excluding net CO_2 from LULUCF	16,293	14,744	15,007	15,211	16,671	16,854	16,989	**4.28**
CH_4	2384	2304	2167	2,229	2184	2160	2172	**-8.89**
N_2O	1376	1256	1214	1319	1284	1309	1319	**-4.14**
HFCs			29	31	96	112	131	**100.00**
PFCs	276	257	286	106	124	116	92	**-66.81**
SF_6	10	10	12	16	19	19	19	**83.97**
Total (including net CO_2 from LULUCF)	**18,750**	**15,386**	**13,809**	**13,736**	**14,947**	**15,837**	**14,948**	**-20.28**
Total (excluding net CO_2 from LULUCF)	**20,340**	**18,571**	**18,714**	**18,912**	**20,377**	**20,570**	**20,722**	**1.88**

Methane – CH_4

Between 1986 and 2007, methane emissions were constantly diminishing, from 2.38 Mt CO_2 eq in 1986 to 2.16 Mt CO_2 eq in 2007. CH_4 emissions diminished by 9.4% in spite of

increased emissions from waste by 52%, compared to the base year. This reduction was mainly in Agriculture (-10%) and the Energy sector (-33%).

Nitrous oxide – N_2O

N_2O emissions were down from 1.38 Mt CO_2 eq in 1986 to 1.32 Mt CO_2 eq in 2007. In Agriculture, which is the main source of N_2O emissions, emissions diminished chiefly due to fewer animals and less arable crop production, particularly legumes and N-fixing plants. This reduction was partly due to a changed manner of manure storage, since the fraction of straw-based systems is diminishing on account of the increasing use of slatted floors. Recently, an increase of the fraction of traffic in total N_2O emissions has been observed, this fraction rising from 2.4% in 1986 to 14.4% in 2007.

Hydro-fluorocarbons – HFC

HFC emissions have grown from year to year. In 2007, emissions increased by 16.8% compared to the previous year, which is mostly the consequence of an increasing number of air conditioners in motor vehicles.

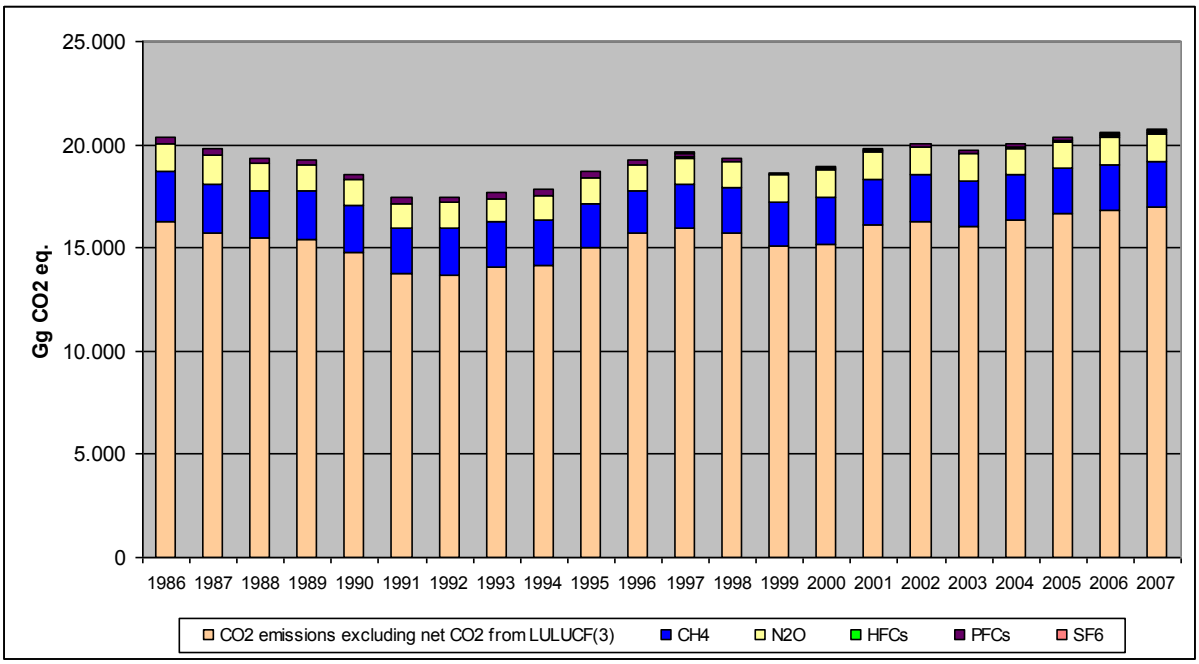
Per-fluorocarbons – PFC

The only source of PFCs in Slovenia is the primary production of aluminium. Improving the technology of aluminium production since 1995 has more than halved the then emissions, which diminished from 286 kt CO_2 eq in 1995 to 92 kt CO_2 eq. A more detailed description of the reduction is given in the NIR, Chapter 4.11, Aluminium Production.

Sulphur-hexafluoride – SF_6

The main source of SF_6 emissions is high-voltage gas-insulated switchgear and circuit breakers. SF_6 emissions represent only 0.1% of total GHG emissions.

Figure 3.2.1: GHG emissions by gas



3.2.2 Description and interpretation of emission trends by source

According to the UNFCCC Reporting Guidelines, emissions estimates are grouped into six IPCC categories: Energy, Industrial Processes, Solvent Use, Agriculture, Land Use, Land-Use Change and Forestry, and Waste.

By far the most important sector is Energy, which in 2007 accounted for 80.6% of total GHG emissions. Emissions in this sector increased by 3.9%, compared to the base year. Within this sector, in the period 1986–2007, GHG emissions from the Energy Industry, as the biggest sub-sector, decreased by 2.0%. In the most recent period, 1999–2007, steep growth (+25.9%) has been recorded due to the increased consumption of electrical energy. Undoubtedly the greatest increase in GHG emissions has been in the transport sector, by as much as 165.3%, due to an increase in road transportation, while emissions from other kinds of traffic have slightly declined. There was an appreciable reduction of GHGs from industry between 1986 and 2000 (-52%). After 2000, a stabilisation of emissions has been observed.

Table 3.2.3: GHG emissions and removals by sector, 1986–2007

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1986	1990	1995	2000	2005	2006	2007	Change from 1986 to 2007
	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	CO_2 eq (Gg)	(%)
1. Energy	16,069	14,396	14,894	15,063	16,419	16,574	16,688	**3.85**
2. Industrial Processes	1288	1292	1109	970	1186	1217	1225	**-4.86**
3. Solvent and Other Product Use	82	43	17	43	43	44	42	**-48.52**
4. Agriculture	2334	2243	2117	2162	2006	2029	2082	**-10.80**
5. Land Use, Land-Use Change and Forestry	-1589	-3186	-4905	-5175	-5430	-4733	-5774	**263.34**
6. Waste	566	597	576	674	723	705	684	**20.79**
7. Other	NA	NA	NA	NA	NA	NA	NA	**NA**
Total (including LULUCF)	**18,750**	**15,386**	**13,809**	**13,736**	**14,947**	**15,837**	**14,948**	**-20.28**
Total (excluding net CO_2 from LULUCF)	**20,340**	**18,571**	**18,714**	**18,912**	**20,377**	**20,570**	**20,722**	**1.88**

Since 1986, GHG emissions from Industrial Processes at first fell sharply to reach their lowest value in 1993, but then started to rise again, yet remaining below the base year, in 2007 by 4.9%. The most important GHG of this sector was carbon dioxide, with 79.8% of emissions from this category, followed by HFCs with 10.7%, PFCs with 7.5%, SF_6 with 1.5% and CH_4 with 0.5%. N_2O emissions in this sector did not occur.

The main source is Mineral Production, of which the production of cement and lime alone contribute more than half the emissions in this sector.

The Solvent and Other Product Use sector represents 0.2% of total emissions. Emissions in this sector keep diminishing, since Slovenia has ceased all production in which GHG emissions could arise. Thus, GHG emissions have been reduced from 82kt CO_2 eq to 42 kt CO_2 eq, only from N_2O emissions.

In Agriculture as the second most important sector, emissions in 2007 amounted to 2082.1 Gg, which represents 10.1% of all emissions. Agriculture represents the main source of methane and N_2O emissions, namely 52.9% of all methane emissions and 71.1% of all N_2O emissions. In the agricultural sector, N_2O emissions account for 45.1% of emissions, and CH_4 emissions account for 54.9% of emissions.

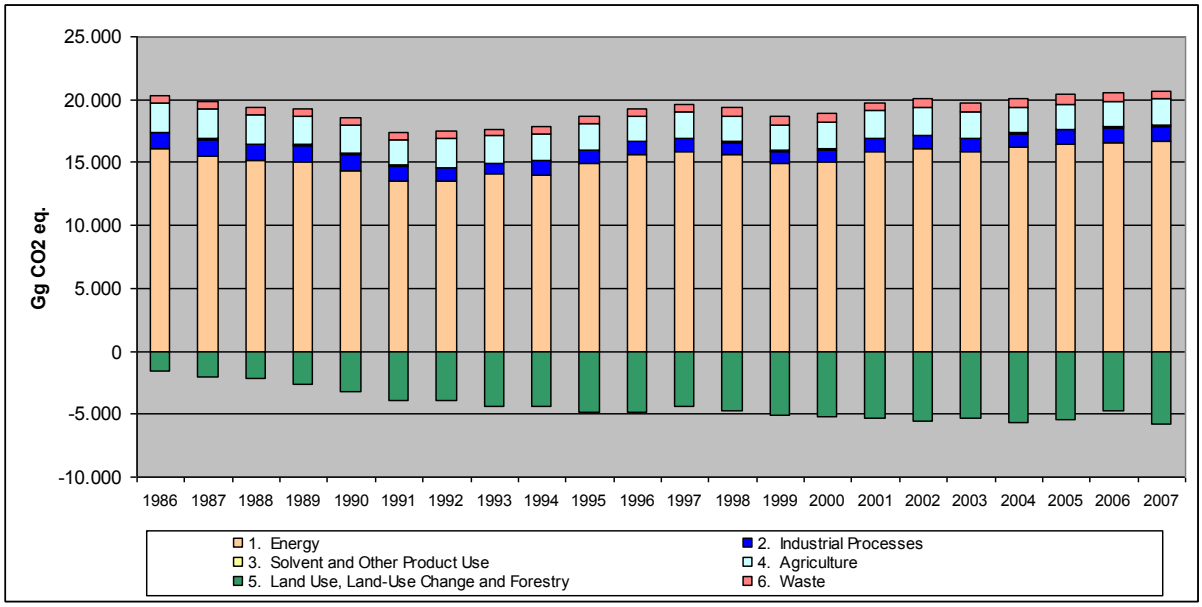
GHG emissions from agriculture show small oscillations for individual years, but the general trend is on the decrease. In 2007, emissions were 10.8% below the base year. The most important sub-sector is emissions from agricultural soils, which contribute 36.7% of all emissions from agriculture, followed by emissions from enteric fermentation, with 32.9%; the rest is contributed by emissions of methane and N_2O from animal manure (30.4%).

In the LULUCF sector, the CO_2 sink was estimated in 2007 at 5,774 Gg, which is 263% more than in 1986. The increase in sinks was primarily the result of an increase in timber growing stock in existing forests. In the submission for 2010, owing to a more precise methodology (Tier 3) set out in the good practice guidelines for the area of consumption and changes to soil use and of forestry activities, the estimates of sinks presented in the 2009 submission will be corrected.

Methane emissions from the Waste sector are the second largest source of methane and represent 28.2% of all methane emissions in Slovenia. The fraction of methane emissions in this sector amounts to 90.6%, while the remaining part represents N_2O. Solid waste handling contributes 67.5% to the total emissions from this sector, municipal wastewater 23.6% and industrial wastewater 8.9%.

Compared to the base year, emissions have risen by 21%, which is mostly due to emissions from SWDSs, which show an increase of 51.7%. The increase in emissions from this source is a consequence of the increase in the amount of disposed municipal waste and the application of the FOD method for calculating emissions. Emissions from wastewaters are lower than in the base year by 18.3%, which is mostly due to the recovery of gas in wastewater treatment plants and the decrease in industrial production.

Figure 3.2.2: GHG emissions by sector



3.3 National Inventory System

3.3.1 National entity

In accordance with Slovenian legislation, the Environmental Agency of the Republic of Slovenia is charged with the overall coordination of activities necessary for the development of emission inventories, as well as with implementing inventories for the purpose of reporting to the UNFCCC and the European Commission.

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3.3.2 Description of the institutional arrangement for inventory preparation

In Slovenia, the institution responsible for GHG inventories is the Environmental Agency of the Republic of Slovenia. In accordance with its tasks and obligations to international institutions, the Environmental Agency is charged with making inventories of GHG emissions, as well as emissions that are defined in the Convention on Long Range

Transboundary Air Pollution within the specified time limit. In making the inventories, the Environmental Agency cooperates with numerous other institutions and administrative bodies which relay the necessary activity data and other necessary data for the inventories.

The chief sources of data are the Statistical Office of the Republic of Slovenia (SORS) and the Ministry of Environment and Spatial Planning; however, the Environmental Agency obtains much of its data through other activities which it performs under the Environmental Protection Act. Emissions from Agriculture are calculated in cooperation with the Slovenian Agriculture Institute (KIS), and sinks in the LULUCF sector are calculated by the Slovenian Forestry Institute (GIS).

Table 3.2.4: Inventory Institutional Arrangements and Data Sources

IPCC category	IPCC sub-category	Sources of data
CRF 1 A – Energy. Fuel Combustion	CRF 1A1 – Energy Industry	• Statistical Office of the Republic of Slovenia: Joint Questionnaires, Energy Balances • Environmental Agency of the Republic of Slovenia (ETS data) • Large Combustion Plants (LCP)
	CRF 1A2 – Manufacturing Industries and Construction	• Statistical Office of the Republic of Slovenia • Environmental Agency of the Republic of Slovenia (ETS data, plant data)
	CRF 1A3 – Transport	• Statistical Office of the Republic of Slovenia: Joint Questionnaires, Energy Balances • Ministry of Transport, Directorate for National Roads (DRSC) • Ministry of the Interior (vehicle stock)
	CRF 1A4 – Other Sectors	• Statistical Office of the Republic of Slovenia
CRF 1 B – Fugitive Emissions from Fuels		• Statistical Office of the Republic of Slovenia • Geoplin (transport of natural gas)
CRF 2 – Industrial Processes	CRF 2A – Mineral Products	• Statistical Office of the Republic of Slovenia • Environmental Agency of the Republic of Slovenia (ETS data, plant data)
	CRF 2B – Chemical Industry	• Statistical Office of the Republic of Slovenia • Environmental Agency of the Republic of Slovenia (plant data)
	CRF 2C – Metal Production	• Statistical Office of the Republic of Slovenia • Environmental Agency of the Republic of Slovenia (ETS data, plant data)
	CRF 2D – Other Production	• Statistical Office of the Republic of Slovenia: • Environmental Agency of the Republic of Slovenia
	CRF 2F – Consumption of Halocarbons and SF_6	• Environmental Agency of the Republic of Slovenia
CRF 3 – Solvent and Other Product Use		• Statistical Office of the Republic of Slovenia
CRF 4 – Agriculture		• Statistical Office of the Republic of Slovenia • Agricultural Institute of Slovenia
CRF 5 – Land Use Change and Forestry		• Slovenian Forestry Institute • Statistical Office of the Republic of

		Slovenia
CRF 6 – Waste	CRF 6A – Solid Waste Disposal on Land	• Environmental Agency of the Republic of Slovenia
CRF 6 – Waste	CRF 6B – Waste Water	• Statistical Office of the Republic of Slovenia • Environmental Agency of the Republic of Slovenia

3.3.3 Brief description of the process of inventory preparation

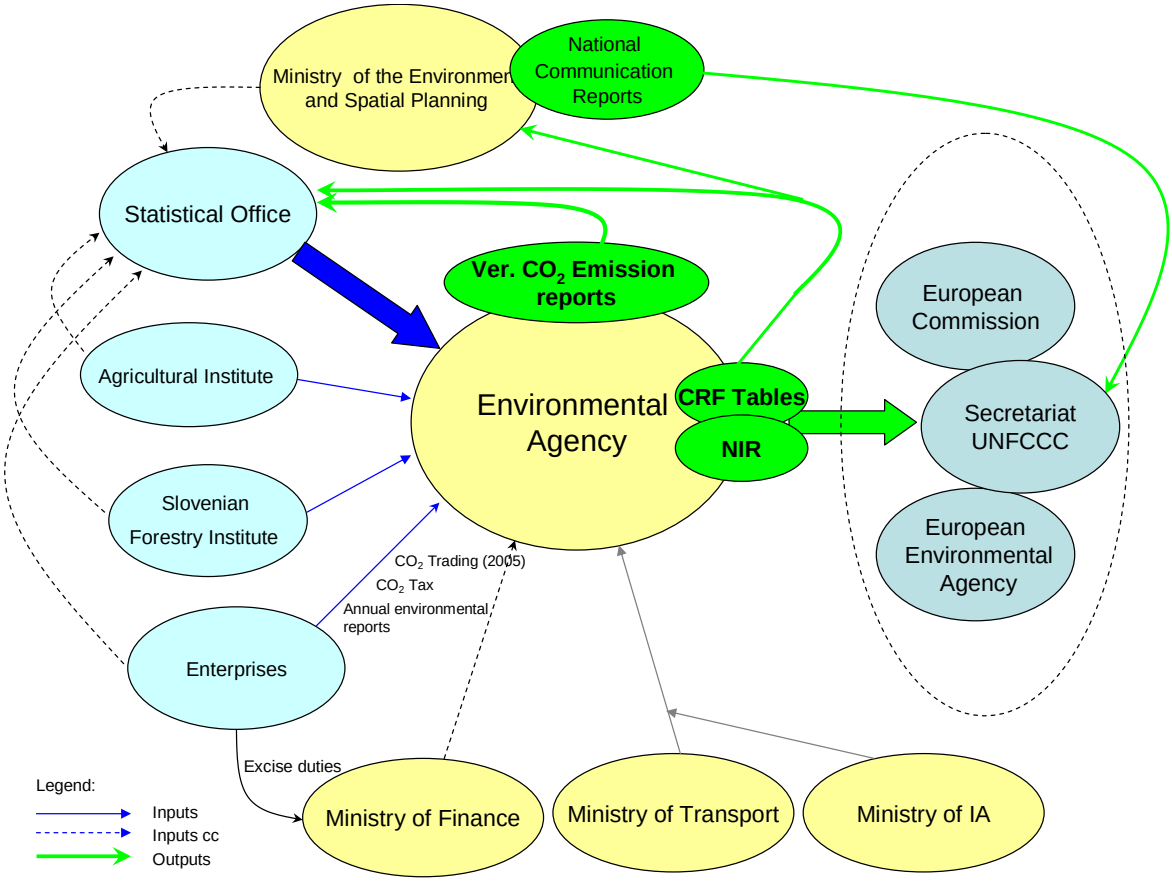
Owing to the ever-increasing obligations of Slovenia with regard to reporting, the Environmental Agency of the Republic of Slovenia has decided to implement a unified system of data collection for the purposes of making inventories, as well as secure reliable financing in accordance with the annual program of its work. The ability to fulfil its obligations with regard to reporting was also improved by the participation of Environmental Agency in the GEF project "Capacity building for improving GHG inventories", which ended in June 2006, and thus Slovenia made the inventories in due time and sent them in the required form to the UNFCCC Secretariat.

A Memorandum of Understanding has been concluded with institutions that participate in inventory preparation, binding these institutions to submit quality and verified data to the Environmental Agency in due time, because the time limits for inventories and the NIR have shortened with the entry of Slovenia into the EU, since inventories and part of the NIR for the year before last must be made by 15 January, and with corrections and final submission of the NIR by 15 March. In view of this, an agreement has been reached with the participating institutions to shorten the time limits for submitting data. For reasons of complexity, attention was mostly focused on the Joint Questionnaires of the Statistical Office of the Republic of Slovenia, on the basis of which the Statistical Office produces the Energy Balance of the Republic of Slovenia, wherein the most important data on the energy sector are to be found.

The year 2003 saw the end of the process of harmonisation of data collection among the Directorate of Energy, Ministry of Environment and Spatial Planning, and the Statistical Office of the Republic of Slovenia. An end was put to previous parallel double collecting of data. The competence of collecting data has, by law, passed to the Statistical Office of the Republic of Slovenia, which checks the data and eliminates potential reporting errors, and submits consolidated data to the Directorate of Energy, which has been publishing data until 2005 in its Energy Yearbook of the Republic of Slovenia. In terms of content, the data were identical to those submitted in the Joint Questionnaires to the IEA.

At the beginning of 2007, the agreement between Statistical Office of the Republic of Slovenia and the Environmental Agency came into force. Accordingly, all statistical data which are necessary for preparing GHG inventories are available each year by October 30 at the latest. In exchange, ETS data and emission estimates are reported to the Statistical Office within a defined time frame.

Figure 3.2.3: Data flow in the Slovenian National Inventory System



Experts from the Slovenian Forestry Institute and the Agricultural Institute of Slovenia work on GHG inventories according to the standing rules of institutes (ordinance). Financing is assured by governmental institutions according to the yearly work plan. All data from external institutions are submitted to the Environmental Agency, where they are archived. The detailed process from gathering data to emissions calculation and reporting is described in our Manual of Procedures, which was prepared in 2005 and updated in 2008. In 2009, the QA/QC plan as part of the Manual was developed and mostly implemented.

For submitting reports to different institutions, various report formats have been devised, since the same data are used to report to the UNFCCC, EEA, EC, and CLRTAP. All external reports of the Environmental Agency of the Republic of Slovenia are prepared in accordance with ISO 9001 via the Agency's reporting service, which keeps inventories of reports. Parallel to this, emissions data are submitted to the Statistical Office of the Republic of Slovenia, which makes this data available in its publications and submits them to EUROSTAT and the IEA.

In 2006, we started to develop a joint database for GHGs and other pollutants. It already contains all activity data, emission factors and other parameters together with a description of sources from 1980 on for other pollutants, and from 1986 on for GHG emissions. At defined control points, QC procedures are included. In the final stage we are going to develop a direct bulk import file from the database to CRF Reporter. Some phases of the database were concluded as of the end of 2008, but the whole process is planned to be finished in November 2009.

Inventories of GHG emissions were presented on the basis of the IPCC (IPCC 1996, GPG 2000) methodology for all gases and sectors. Due to the importance of the source and accessible data, different approaches (tiers) from within the IPCC methodology were used. National emission factors were used for assessment of emissions from domestic coal and natural gas (Tier 2), while for other fuels, default IPCC emission factors were mainly used.

The quantities of fuels and consumed fuel energy values were taken from the Statistical Office of the Republic of Slovenia. Additional data on the energy use of some types of waste (waste tyres, oils and solvents) were acquired from verified ETS reports. Data on fuel consumption in agriculture and forestry refer to mobile sources only, while the rest of the fuel consumption of these sub-sectors is included in the public and service sub-sector. Default IPCC emission factors and oxidation fractions were used for energy consumption of liquid fossil fuels. On the basis of determined carbon content in the fuel, the CS EF for natural gas used in Slovenia was used for the whole period. GHG emissions in road transport were determined with the COPERT III model.

Under CO_2 fugitive emissions in the Energy sector, emissions were considered that were released during flue gas desulphurisation in thermal power plants and were calculated on the basis of data on the consumption of calcium carbonate. CO_2 emissions in post-mining activities were not assessed, as no estimation method is available. Emission factors for fugitive emissions of CO_2 and CH_4 in mining activities were determined on the basis of measurements of methane concentrations in ventilation shafts in mines and estimated quantities of released methane. The emission factor that was determined in this manner was lower than the default IPCC emission factor. The regional default IPCC emission factor for transmission and distribution of natural gas does not correspond to the conditions in Slovenia; consequently, in calculating CH_4 emissions from the distribution of natural gas, data from the companies that manage the distribution and transportation network were used. Losses were estimated according to the length of individual types of transmission or distribution pipelines with regard to the pipe type, applying specific losses per unit of length, as presented in the German Inventory, and this appears to be a sensible solution considering the level of maintenance and low average age of the distribution network.

Emissions from industrial processes were mostly determined on the basis of statistical data on production and consumption of raw materials and by applying country-specific emission factors. After 1997, the Statistical Office of the Republic of Slovenia partly changed the manner of collecting and presenting these data, and therefore most of the data were obtained directly from individual companies. These data have also been used for preparing our National Allocation Plan for the EU-ETS. Since 2005, data from verified reports have mostly been used. In some cases (aluminium and ferroalloy production), the plant data still have to be obtained. Emissions from primary aluminium production were estimated from anode consumption and from PFC emissions, which were determined on the basis of the number and duration of anode effects. In determining actual emissions caused by the use of HFCs, data were obtained from companies that use or sell these materials, as well as data on the export and import of refrigerators. For SF_6 emissions, the release of this gas from gas-insulated switchgear in the Energy sector was assessed. Emissions from the consumption of solvents and diluents consisted only of N_2O, which arises from evaporation during the use of N_2O, mostly for anaesthesia.

Table 3.2.5: Summary report for methods and emission factor used

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2		CH_4		N_2O		HFCs		PFCs		SF_6	
	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor	Method applied	Emission factor
1. Energy	**M,T1**	**CS,D, M**	**M,T1**	**CS,D,M**	**M,T1**	**CS,D,M**						
A. Fuel Combustion	M,T1	CS,D	M,T1	CS,D	M,T1	CS,D						
1. Energy Industries	T1	CS,D	T1	D	T1	D						
2. Manufacturing Industries and Construction	T1	D	T1	D	T1	D						
3. Transport	M,T1	M,D	M,T1	M,D	M,T1	M,D						
4. Other Sectors	T1	CS,D	T1	D	T1	D						
5. Other	NA	NA	NA	NA	NA	NA						
B. Fugitive Emissions from Fuels	T1	D	T1	CS,D	NA	NA						
1. Solid Fuels	T1	D	T1	CS	NA	NA						
2. Oil and Natural Gas	NA	NA	T1	CS,D	NA	NA						
2. Industrial Processes	**CR,CS, D,T2**	**CS,D, OTH,PS**	**D**	**D**	**D**	**D**	**T2**	**D**	**T3**	**PS**	**T2**	**D**
A. Mineral Products	CR,CS,D,T2	CS,D,OTH	NA	NA	NA	NA						
B. Chemical Industry	CR,D	D,OTH	D	D	D	D	NA	NA	NA	NA	NA	NA
C. Metal Production	D,T2	PS	NA	NA	NA	NA	NA	NA	T3	PS	NA	NA
D. Other Production	NA	NA										
E. Production of Halocarbons and SF_6							NA	NA	NA	NA	NA	NA
F. Consumption of Halocarbons and SF_6							T2	D	NA	NA	T2	D
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA**	**NA**			**D**	**D**						
4. Agriculture			**T1,T2**	**CS,D**	**D, T1a,T1b**	**CS,D**						
A. Enteric Fermentation			T1,T2	CS,D								
B. Manure Management			T1,T2	CS,D	D	D						
C. Rice Cultivation			NA	NA								
D. Agricultural Soils			NA	NA	D,T1a, T1b	CS,D						
E. Prescribed Burning of Savannas			NA	NA	NA	NA						
F. Field Burning of Agricultural Residues			NA	NA	NA	NA						
G. Other			NA	NA	NA	NA						
5. Land Use, Land-Use Change and Forestry	**T2**	**CS,D**	**NA**	**NA**	**NA**	**NA**						
A. Forest Land	T2	CS,D	NA	NA	NA	NA						
B. Cropland	NA	NA	NA	NA	NA	NA						
C. Grassland	NA	NA	NA	NA	NA	NA						
D. Wetlands	NA	NA	NA	NA	NA	NA						
E. Settlements	NA	NA	NA	NA	NA	NA						
F. Other Land	NA	NA	NA	NA	NA	NA						
G. Other	NA	NA	NA	NA	NA	NA						
6. Waste	**NA**	**NA**	**T1,T2**	**D**	**T1**	**D**						
A. Solid Waste Disposal on Land	NA	NA	T2	D								
B. Waste-water Handling			T1	D	T1	D						
C. Waste Incineration	NA	NA	NA	NA	NA	NA						
D. Other	NA	NA	NA	NA	NA	NA						
7. Other (as specified in Summary 1.A)	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

In agriculture, methane emissions from enteric fermentation in bovine animals were elaborated in great detail, and the Tier 2 approach was upgraded by disaggregating livestock into 18 categories according to the intensity of breeding. For emissions from manure management, the Tier 2 approach was used for pig production and bovine animal production. The Tier 1 approach was used for other animals that represent a smaller fraction in methane emissions. Input data for N_2O emissions from manure handling and from indirect emissions from fertilisation with animal fertilisers were obtained in the process of estimating methane emissions. For N_2O emissions, default IPCC factors for determining the conversion of nitrogen into N_2O were used.

Emissions and removals from the LULUCF sector are calculated only for forest land that remains forest land. For other land use categories, emissions and removals are not yet reported.

Methane emissions from solid waste handling were determined by the FOD method, which takes into account the time dynamics of methane release. Emissions of N_2O from wastewater were determined according to the consumption of proteins in human nutrition and production data in the food and paper industry.

3.3.4 Brief description of key source categories

The analysis of key source categories was performed on the basis of sectoral distribution and using the Tier 1 approach. This approach was used both for the base year and for the year 2007.

A level assessment was undertaken for 1986 and 2007, and a trend assessment was performed for 2007. Following the recommendations from the in-country review of our 2006 inventory, the LULUCF sector has been included in the analysis of key categories.

On the basis of the analysis, 25 categories were selected, representing 95.2% of emissions in 2007 according to the level assessment, and 8 more were chosen which are key categories according to the trend assessment. As many as 22 categories are key sources according to level and trend key source analysis. A detailed description of the methodology and results of key sources are available in Annex 1 to the NIR. Selected data are also shown in Table 1.4.

In the last review report, the ERT recommended that Slovenia explore the possibilities of compiling a Tier 2 key category analysis. This is a planned improvement for the 2010 submission, when the uncertainty estimates are also going to be checked and revised, if necessary.

Table 3.2.6: Brief description of IPCC KS Categories for 2007

rank KS level 2007	Main Sector	Subsector	Source	Gas	GHG Emissions in 2007	Contr. to Level (2007)	Cumulative	Contr. to Trend (2007)	KS in 2007	KS in 1986	rank KS level 1986
					Gg CO2 eq.	%	%	%			
1	**1. Energy / A Fuel Comb.**	**1. Energy Industries**	a. Public Electricity and Heat Prod.	CO2	6564,880	24,78	24,78	8,90	**L, T**	L	1
2	**5. LULUCF**	**A. Forest Land**	1. Forest Land remaining Forest Land	CO2	5774,354	21,79	46,57	25,87	**L,T**	L	4
3	**1. Energy / A Fuel Comb.**	**3. Transport**	b. Road Transportation	CO2	5148,405	19,43	66,00	19,04	**L, T**	L	2
4	**1. Energy / A Fuel Comb.**	**2. Manufacturing Industries & Const.**	f. Other	CO2	1268,021	4,79	70,79	5,88	**L, T**	L	3
5	**1. Energy / A Fuel Comb.**	**4. Other Sectors**	b. Residential	CO2	1056,211	3,99	74,77	1,83	**L, T**	L	6
6	**2. Industrial Processes**	**A. Mineral Products**	1. Cement Production	CO2	555,699	2,10	76,87	0,44	**L, T**	L	9
7	**1. Energy / A Fuel Comb.**	**4. Other Sectors**	a. Commercial/Institutional	CO2	474,311	1,79	78,66	1,78	**L, T**	L	8
8	**6. Waste**	**A. Solid Waste Disposal on Land**	1. Managed Waste Disposal on Land	CH4	453,352	1,71	80,37	0,62	**L, T**	L	17
9	**1. Energy / A Fuel Comb.**	**2. Manufacturing Industries & Const.**	d. Pulp, Paper and Print	CO2	452,842	1,71	82,08	2,23	**L, T**	L	7
10	**4. Agriculture**	**D. Agricultural Soils**	1. Direct Soil Emissions	N2O	397,445	1,50	83,58	0,85	**L, T**	L	11
11	**4. Agriculture**	**A. Enteric Fermentation**	1. Non-Dairy Cattle	CH4	397,006	1,50	85,08	0,22	**L**	L	16
12	**4. Agriculture**	**D. Agricultural Soils**	3. Indirect Emissions	N2O	312,738	1,18	86,26	0,60	**L, T**	L	15
13	**1. Energy / B Fugitive**	**1. Solid Fuels**	a. Coal Mining and Handling	CH4	254,452	0,96	87,22	1,20	**L, T**	L	14
14	**4. Agriculture**	**A. Enteric Fermentation**	1. Dairy Cattle	CH4	236,662	0,89	88,11	1,89	**L, T**	L	12
15	**1. Energy / A Fuel Comb.**	**4. Other Sectors**	c. Agriculture/Forestry/Fisheries	CO2	229,301	0,87	88,98	1,92	**L, T**	L	13
16	**1. Energy / A Fuel Comb.**	**2. Manufacturing Industries & Const.**	a. Iron and Steel	CO2	203,278	0,77	89,74	7,89	**L, T**	L	5
17	**2. Industrial Processes**	**C. Metal Production**	3. Aluminium Production	CO2	187,465	0,71	90,45	0,53	**L, T**		31
18	**1. Energy / A Fuel Comb.**	**3. Transport**	b. Road Transportation	N2O	184,708	0,70	91,15	1,05	**L, T**		44
19	**4. Agriculture**	**B. Manure Management**	8. Swine	CH4	176,015	0,66	91,81	0,70	**L, T**	L	21
20	**1. Energy / A Fuel Comb.**	**2. Manufacturing Industries & Const.**	c. Chemicals	CO2	173,354	0,65	92,47	0,37	**L**	L	28
21	**4. Agriculture**	**B. Manure Management**	13. Solid Storage and Dry Lot	N2O	164,739	0,62	93,09	1,00	**L, T**	L	19
22	**4. Agriculture**	**B. Manure Management**	1. Non-Dairy Cattle	CH4	159,409	0,60	93,69	0,31	**L**		30
23	**1. Energy / A Fuel Comb.**	**2. Manufacturing Industries & Const.**	e. Food Proc., Beverages and Tobacco	CO2	131,421	0,50	94,19	1,13	**L, T**	L	20
24	**2. Industrial Processes**	**F. Consumption of HFC and SF6**	1. Refrigeration and AC Equipment	HFC	130,226	0,49	94,68	0,87	**L, T**		NO
25	**2. Industrial Processes**	**A. Mineral Products**	2. Lime Production	CO2	123,427	0,47	95,14	0,96	**L, T**	L	22
26	**4. Agriculture**	**B. Manure Management**	1. Dairy Cattle	CH4	111,047	0,42		0,67	**T**	L	23
27	**1. Energy / B Fugitive**	**1. Solid Fuels**	c. Other (SO2 scrubbing)	CO2	97,093	0,37		0,80	**T**		NO
29	**2. Industrial Processes**	**C. Metal Production**	3. Aluminium Production	PFC	115,550	0,44		1,67	**T**	L	18
30	**1. Energy / A Fuel Comb.**	**4. Other Sectors**	b. Residential	CH4	89,205	0,34		0,54	**T**	L	24
32	**1. Energy / A Fuel Comb.**	**2. Manufacturing Industries & Const.**	b. Non-Ferrous Metals	CO2	67,540	0,25		3,62	**T**	L	10
31	**1. Energy / B Fugitive**	**1. Solid Fuels**	a. Coal Mining and Handling	CO2	80,989	0,31		0,48	**T**	L	25
75	**1. Energy / A Fuel Comb.**	**1. Energy Industries**	c. Manufacture of Solid Fuels	CO2	0,675	0,00		0,99	**T**	L	27
61	**1. Energy / A Fuel Comb.**	**1. Energy Industries**	b. Petroleum Refining	CO2	8,532	0,03		0,52	**T**		34
28	**6. Waste**	**B. Waste Water Handling**	2. Domestic and Commercial WW	CH4	96,909	0,37		0,29		L	26
34	**6. Waste**	**B. Waste Water Handling**	1. Industrial Wastewater	CH4	70,491	0,27		0,36		L	29

3.3.5 Main reasons for recalculating GHG estimates in the last three years

Energy
Due to the harmonisation process between CLRTAP and UNFCCC reporting, more detailed calorific values from individual thermal power plants have been obtained and some ADs have been slightly changed. The main recalculations occurred in the Energy sector for emissions from road transport. Recalculations have been made for all greenhouse gases for the entire 1986–2006 period since the last submission. Improvements and recalculations include changes in activity data and emission factors. New input data for vehicle fleet data, mileage data per vehicle category and type of road, speed data, fuel consumption and fuel characteristics, monthly minimum and maximum air temperatures and fuel vapour pressure were used. All emission factors used in the emission inventory for road transport were default emission factors offered in the COPERT III program.

Industrial Processes
In industrial processes only minor changes were made due to more precise plant data from the producers.

Agriculture
New figures for the poultry population have been provided by the Statistical Office for 2002 and 2005, which slightly changes the methane emissions from manure management and N_2O emissions from manure management and from soil.

Waste
Recalculations also occurred in the Waste sector. Due to changes in the historical data of biodegradable waste deposited at the SWDS, we have to change the DOC values from 1989. A new set of data for protein consumption for the period 2002–2004 has been obtained, and N_2O emissions from human sewage have been recalculated accordingly for these years.

3.3.6 Information on the QA/QC plan and verification

In 2009, Slovenia developed and mostly implemented a Quality Assurance and Quality Control plan as recommended by the IPCC Good Practice Guidelines (IPCC 2000). The QA/QC plan is part of the Manual of Procedures, elaborated in 2005 and updated in 2009. At the beginning of 2009, a QA/QC manager at the inventory agency was designated.

Quality Control (QC) is a system of routine technical activities to measure and control the quality of the inventory as it is being developed. The QC system is designed to:
- provide routine and consistent checks to ensure data integrity, correctness and completeness;
- identify and address errors and omissions;
- document and archive inventory material and record all QC activities.

The general part of this system is incorporated in an Oracle database (ISEE – "Emission inventory" information system) established at the end of 2008. The main purpose of ISEE is:

- to enable collection and archiving of activity data, emission factors and other parameters including descriptions of sources from 1980 on for other pollutants, and from 1986 on for GHG emissions;

- to calculate GHG and other pollutant emissions;
- to automatically fill in reporting tables (CRF Reporter).

In late 2008, the first two stages of development of ISEE were finished, while bulk importing into CRF Reporter is still in the testing phase. ISEE enables and ensures that all necessary built-in QA/QC checks have been performed before data and emission estimates are entered in the reporting format tables. It also keeps a record of all changes made to data in the database.

As all calculations are performed in the database with software generated for this purpose, no human errors, common in calculations made in Excel spreadsheets, are expected. After these procedures, the activity data (fuel consumption and NCV) are transferred into the database, while EFs are imported manually. Then emissions are calculated automatically according to the built-in formulas. For 2007, GHG emissions were also calculated in Excel spreadsheets. Both estimates were compared and all differences were carefully investigated and corrected.

During development of the database, the following QC was performed:

Check of methodological and data changes resulting in recalculations
- Check for temporal consistency in time series input data for each source category.
- Check for consistency in the algorithm/method used for calculations throughout the time series.

Completeness checks
- Confirm that estimates are reported for all source categories and for all years from the appropriate base year to the period of the current inventory.
- Check that known data gaps that result in incomplete source category emissions estimates are documented.
- Compare estimates to previous estimates: for each source category, current inventory estimates should be compared to previous estimates. If there are significant changes or departures from expected trends, recheck estimates and explain any differences.

Check of activity data, emission factors and other parameters
- Cross-check all input data from each source category for transcription errors.
- Check that units are properly labelled in calculation sheets.
- Check that units are correctly carried through from beginning to end in calculations.
- Check that conversion factors are correct.
- Check that temporal and spatial adjustment factors are used correctly.

Check of emissions estimates
For the entire period 1986–2007, GHG emissions are also calculated in the old way using Excel spreadsheets and in the database using built-in formulas. Both estimates were compared and all differences carefully investigated.
The reasons for differences were the following:
- Formulas for calculation of emissions were not correct.
- Data field was not properly labelled.
- Data relationship was not correct.
- Emissions data were not correctly aggregated from lower reporting levels to higher reporting levels.

All errors were corrected and the accuracy of emissions calculations on all levels is now assured.

QA/QC checks not performed in the database:

Documentation and archiving

All inventory data are now stored in a joint database. Supporting data and references are stored in electronic form and/or hard copy form. Inventory submissions are stored mostly in electronic form at various locations and on various media (network server, RAM, computer hard disk). Access to files is limited in accordance with the security policy. Backup copies on the server are made at regular intervals in accordance with the requirements of the information system. All relevant data from external institutions are also stored at the Environmental Agency.

QA/QC checks of documentation and archiving procedures:

- Check that inventory data, supporting data, and inventory records are archived and stored to facilitate detailed review.
- Check that there is detailed internal documentation to support the estimates and enable duplication of the emissions estimates.
- Check that documentation of the database is adequate and archived.
- Check that bibliographical data references are properly cited in the internal documentation and archived.

Uncertainty

Checks of uncertainty were not performed in 2009 but are foreseen for 2010 according to the QA/QC plan. The checks consist of the following:

- Check that the qualifications of individuals providing expert judgement for uncertainty estimates are appropriate.
- Check that qualifications, assumptions and expert judgements are recorded. Check that calculated uncertainties are complete and calculated correctly.
- Check that there is detailed internal documentation to support the uncertainty estimates.

In 2006, an additional quality control check point was introduced by forwarding the assessment of verified emission reports from installations included in the National Allocation Plan to the Statistical Office of the Republic of Slovenia (SORS). The role of SORS is to compare data from installations included in the EU-ETS with data from their reporting system and to propose corrective measures, if necessary. The outcome of data consistency checks is used as preliminary information for the Ministry of the Environment and Spatial Planning to perform on-site inspections. The use of (EU) ETS data is described in more detail in the relevant chapter on Energy and Industrial Processes sectors.

QA generally consists of independent third-party review activities to ensure that the inventory represents the best possible estimates of emissions and removals, and to support the effectiveness of the QC program. In the past we have performed only one peer review. In 2006, we received many useful comments from the team preparing our fourth National Communication Report. Although the comments were not presented as an official report, we accepted many of the suggestions and corrected a number of errors. We are planning a sectoral review of our inventory on a yearly basis – one sector per year. In May 2009, a peer review of the Slovenian inventory was performed for the energy sector.

QA/QC procedures performed by other institutions (Slovenian Forestry Institute and Agricultural Institute of Slovenia) are described in the relevant chapters in the NIR (LULUCF, Agriculture). Data based on forest statistics are produced by the Slovenian Forestry Service, the Slovenian Forestry Institute and SORS. Data based on agricultural statistics are mainly from SORS and the Agricultural Institute. All data were checked.

The Statistical Office of Slovenia (SORS) is our main data provider. In 2005, the European Statistics Code of Practice was adopted, bringing considerable changes to the SORS QA/QC system. The main pillars (factors) of quality are defined and thoroughly described in the Medium-term Programme of Statistical Surveys 2008–2012 (http://www.stat.si/doc/drzstat/SPSR-ang.pdf). The strategic directions from the Medium-term Programme of Statistical Surveys are presented in detail at http://www.stat.si/doc/drzstat/kakovost/TQMStrategy_2006_eng.doc in the Total Quality Management Strategy 2006–2008.

3.3.7 Official consideration and approval of the inventory

Before the inventory is reported to the EU, EEA or UNFCCC Secretariat, it goes through an approval process. The institution designated for approval is the Ministry of Environmental and Spatial Planning. The inventory is sent to the Ministry according the following plan:

- draft CRF tables on 3 January
- final CRF tables and draft NIR on 1 March
- final report on 1 April

3.4 National Registry

The **GRETA registry system** used in Slovenia was developed for the EU Emissions Trading Scheme. This scheme requires that the Member States' registries be compliant with the UN Data Exchange Standards specified for the Kyoto Protocol.

Currently, the development adheres to the standards specified in Draft #7 of the UN DES document. Slovenia has had the registry system tested successfully with the EU Commission and the National Registry has since gone live.

In the Slovenian Environment Protection Act of 7 May 2004, the Environmental Agency of the Republic of Slovenia was assigned the responsibility of administering the National Registry.

The most recent information about testing is available in the GRETA Test Report from August 2008. From a review of the test it is evident that all functions have successfully passed the testing and that only some minor issues arose which do not represent a significant risk to the GRETA Emissions Trading Registry going live. The report is valid for all licensees, including Slovenia. The whole report is available in the annex to the NC5 in the file: *Greta_Test_Report.pdf.*

3.4.1 Name and contact information of the administrator designated by the Party to maintain the National Registry

The administrator designated by Slovenia to maintain the National Registry is:

Environmental Agency of the Republic of Slovenia
Address: Vojkova 1b, SI-1000 Ljubljana
Phone: +386 1 478 40 00
Contact person: Mrs. Tanja Kurbus
Phone: +386 1 478 40 87
E-mail: tanja.kurbus@gov.si

3.4.2 Any other Party with which the Party cooperates by maintaining their respective registries in a consolidated system

In the EU Emission Trading Scheme all Member States are included in a common system. The Slovenian Registry is currently linked to the other operational EU Member States' national registries by way of the European Commission CITL (Community Independent Transaction Log).

3.4.3 Description of the database structure used in the National Registry

The system configuration consists of two physical servers at one location and a third at another location, where a warm copy of the database is kept for the sake of increased reliability. The National Registry is a three-tiered application. A database management system (DBMS) runs on a separate server and is imbedded in the overall system. The database server runs on Microsoft SQL Server 2000, which is installed on top of the Windows 2003 Server Std. Edition.

The database server is separated from the application server by a firewall and is reachable only from an application server in such a way that is consistent with the predefined security policy. Web services, as a part of the application server, are used for communication with the CITL (Community Independent Transaction Log). There are internal and external web services. Internal web services are reachable inside the DMZ, while external web services are visible on the Internet via the SSL protocol, using password protection.

Besides the aforementioned services, two other web servers that are used by end users of the ETR application are running on the same physical server. The first is publicly accessible, while the second, with its secured part, is only accessible to authenticated users. The entire system is secured at a network level using a CISCO PIX 506 firewall and monitored by the CA Unicenter management system. The entire system scheme is presented graphically in an attached document. The Fujitsu-Siemens servers and all the installed software (OS, RDBMS, Defra application) are owned by EARS. All additional software licenses are the responsibility of the hosting provider.

Hardware and software

Web and application server:

Fujitsu-Siemens, FS PY RX300 X/3.2/1M 2 GB RAM, Raid1 (2x73 GB + Hot Spare)
Windows 2003 Server Web Edition
WSE 1.0
.NET J redistributable pack
IIS 6
WUS (Windows Update Services)
eTrust AV

Database server:
Fujitsu-Siemens, FS PY RX300 X/3.2/1M 4 GB RAM, Raid1 (2x73 GB + Hot Spare)
Windows 2003 Server Std. Edition
Microsoft SQL Server 2000 Standard

Backup server:
Windows 2003 Server Std. Edition
Microsoft SQL Server 2000 Standard

Firewall:
Cisco PIX 506
Capabilities: Network interface speed 100Mbps, allows up to 25000 simultaneous connections

Mail server (SMTP):
Notifications of accomplished transactions are sent by the application via e-mail. The application therefore needs access to the SMTP mail server, which then sends the notifications to the end users' e-mail addresses. The mail server address (SMTP) and sender address (FROM Address) are set in web.config files located in the root folder of the application.

In case of difficulties in sending e-mails (wrong or suspended e-mail addresses, trouble with the e-mail server), there is an e-mail box created on the mail server in which return messages concerning undelivered mail are gathered.

System settings:

Web server:

Besides the application, the following software is installed on the web server:

- WUS (Windows Update Services) collects the latest OS updates and patches and forwards them to the database server because of the lack of its own direct access to the Internet.
- The DNS server is intended for central management of server names, but also serves for communication between the database server and the web server.

Database server:

- MS-SQL Server 2000
- Kiwi syslog – collects the firewall logs

- IAS (Internet Authentication System) as a part of Windows 2003 Server Std. Edition, intended for additional authentication of users with VPN access.

3.4.4 The National Registry conforms to the technical standards for data exchange between registry systems for the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the Clean Development Mechanism registry and the transaction log (Decision 19/CP.7, paragraph 1) as follows:

The GRETA registry system used in Slovenia was developed for the EU Emissions Trading Scheme, which requires its Member States registries to be compliant with the UN Data Exchange Standards specified for the Kyoto Protocol. Currently, the development adheres to the standards specified in Draft #7 of the UN DES document. Slovenia has had the registry system tested successfully with the EU Commission and the Registry has since gone live.

As part of the GRETA registry development, functionality has been developed to perform issuance, conversion, external transfer, (voluntary) cancellation, retirement and reconciliation processes using XML messages and web services as specified in Draft #7 of the UN Data Exchange Standards document.

In addition, 24-Hour Clean-up, Transaction Status enquiry, Time Synchronisation, Data Logging requirements (including Transaction Log, Reconciliation Log, Internal Audit Log and Message Archive) and the different identifier formats specified in the UN DES document have been implemented. Extensive tests on these functionalities can therefore be arranged with the ITL test system.

With regard to performing tests with the CDM Registry (external transfer for example), this can also be performed.

The following additional Kyoto functionalities have been developed for our Registry and tested against the ITL test system: Replacement of t-CER or l-CER, Carry-Over, Expiry Date Change (for t-CER and l-CER), and the whole area of functionality for ITL Notices (and the Notification Log).

In order to minimise discrepancies between the Registry and the Transaction Log, the following approach was adopted for development of the Registry system for the EU Emissions Trading Scheme. The same approach was adopted for the development of the remaining Kyoto functionality for GRETA registry software:

- Communication between the National Registry and the ITL is going via web services using XML messages as specified in the UN DES document. These web-services, XML message format and the processing sequence are as specified in the UN DES document.

- As far as possible, the Registry validates data entries against the list of checks that are performed by the ITL as documented in Annex E of the UN DES Annexes document before forwarding the request to the ITL for processing. This helps minimise sending incorrect information to the ITL for approval.

- All units involved in a transaction are earmarked internally within the Registry, thereby preventing the units from being involved in another transaction until a response has been received from the ITL and the current transaction has been completed.

- The web service that sends the message to the ITL for processing is ensuring that a message acknowledgement is received from the ITL before completing the submission of the message. Where no acknowledgement message was received following a number of retries, the web service terminates the submission and roll back any changes made to the unit blocks that were involved.

- Where a 24-hour clean-up message was received from the ITL, the existing web service rolls back any pending transactions and the units that were involved, thereby preventing any discrepancies in the unit.

- Finally, if an unforeseen failure were to occur, the data discrepancies between our Registry and the ITL can be corrected via a manual intervention function within our Registry. Following this, reconciliation will be performed to validate that the data is in sync between the Registry and the ITL.

3.4.5 Security measures employed in the National Registry of Slovenia are:

Backup plan

Web and application server
An Automatic System Recovery (ASR) copy of the system (diskette + file) is created immediately after OS and application installation. A diskette and a DVD disk with the data are kept in a fireproof cabinet at the location. The ASR is part of the backup program in Windows Server 2003 OS and is intended for automatic IS recovery after a disaster.

A security backup of the web server is performed once a day which includes communication logs with the CITL, web server metadata (metabase) and folders with the application. The backup is performed by a CA Brightstor Enterprise 10.5. backup server situated at the location. DLT tape is used as storage media.

Database server
An Automatic System Recovery (ASR) copy of the system (diskette + file) is created immediately after OS and application installation. A diskette and a DVD disk with the data are kept in a fireproof cabinet at the location. The ASR is part of the backup program in Windows Server 2003 OS and is intended for automatic IS recovery after a disaster.

Security backup of the database server is performed following the Microsoft SQL Server backup recommendations and procedures for databases according to the so-called "full recovery model". At the beginning of the month, a full backup copy of the database and transaction logs are made. Later during the month, security copies of the database transaction logs every 30 minutes and a differential backup of the database every hour are made on the server disk. From the disk they are copied to the server at the remote location every two hours and to the tape of the backup server at the location once a day.

Backup tools
Computer Associates Brightstor ARCserve Enterprise Backup 10.5
Backup utility from the operating system

Backup inside MS-SQL server

Data archiving
Every month, after creating a full backup, a DVD disk is prepared containing the following data that need archiving:

- Full backup of the database
- All transaction logs arising from communication with the CITL on the web server
- Content of the folders on the web server, containing the application and the files with metadata about the web server.

Later during the year, the aforementioned data are added to the DVD, which is rewritten to a new disk, and both disks are stored in a safe place at the beginning of the new year. At the end of January, a new DVD disk is installed, ready for an archive for the current year. All archive copies that must be kept more than a year are rewritten to new media, which is then checked for reading. All copies are stored in a safe place.

Security plan

Setting-up the system:
- The security policy is to be established and implemented on firewalls.
- Antivirus protection is to be installed on all servers as well as up-to-date Microsoft security patches.

Running the system:
- Firewall data logs are checked on a daily basis. In case of attack, the appropriate measures are executed.
- The up-to-date security policy is implemented on a daily basis according to the system requirements.
- Up-to-date security patches are installed whenever new releases are published.
- Daily log checking is to be performed.
- Automatic antivirus software updating is implemented.

Disaster recovery plan

Assuring fault tolerance
Both servers have redundant crucial parts, thus improving the reliability of the system despite the potential failure of individual parts. Among these parts are redundant disks – a mirrored disk with one standby, redundant network adapters and a redundant power supply.

In case of server failure, business continuity is assured using the servers at the remote location. On a working day, this can be accomplished within two hours after discovering a failure. During non-working time this "takeover" will be accomplished as soon as possible, but by not more than two hours into the next working day.

In case of firewall failure there is always another one on hand, which will be replaced within one hour after discovery of the failure during a working day. Otherwise, the replacement can be done by the technician on duty, by not more than one hour into the next working day.
For permanent connectivity of the application with the world, there are redundant network connections to the main communication node in place. In case of failure of any of these

connections, traffic is rerouted automatically or at the latest within one hour after being informed of the failure.

In case of a natural disaster
In case of a natural or other disaster (force majeure), an alternative system is established at the backup location for the time of unavailability of the primary system. The latest backup of the database and backups of the web and application servers are restored and then traffic is rerouted from the primary to the backup location. During operation at the backup location, all activities are undertaken to restore the primary location as soon as possible. When accomplished, the application and the data are returned to the primary location.

Security policy

Access to servers at the location:
Direct access to the servers is allowed via a system console located in a room next to the server room. Access to the servers is allowed only to authorised users.

Access to servers via a VPN connection:
Access to servers via a VPN connection is enabled. For this purpose, Cisco Client software is used. To enable access to a specific machine via VPN, the authorised person must have a username and password on that machine and become a member of the VPN group on that machine. VPN access is allowed to the web server only. If a person wants to access the database server, this is only possible via an RDP client on the web server.

Security policy for the firewall:
There are two segments defined with a firewall, DMZ and INSIDE. In the DMZ segment, there is an address space defined, with a gateway, and the web server is located there. In the INSIDE segment, there is a following address space defined, with a gateway. The database server is located there.

Web server:
Internet access to the server:

Closed, except for HTTP (TCP 80), HTTPS (TCP 443)

Access to the Internet from the server:

Closed, except for HTTP (TCP 80), HTTPS (TCP 443), SMTP (TCP 25), SNTP (UDP 123), DNS (UDP 53)

Internet access to the server:
Internet access to the server is blocked.

Access to the Internet from the server: Blocked

Access to the server from the DMZ: Closed, except for SQL (TCP 1433) and RDP (TCP 3389)

Access to the DMZ from the web server: Closed, except for HTTP (TCP 80), DNS (UDP 53), SNTP (UDP 123)

VPN connections:

A VPN connection with the system using Cisco Client. An additional authentication method utilises the aforementioned usernames and passwords.

Web services security settings:
Production and test environment: Internal web services are accessible within the DMZ segment only. Access to these services is restricted by means of IP restrictions on the web server. External web services are accessible through proper username and password only.

For the GRETA registry, the following security measures have been taken:
- By default, access to the registry is via username and password, though a different authentication module can be added locally, if required.
- The actions that a user can perform are controlled by a permissions system, hence preventing unauthorised access to restricted actions.
- Database manipulations are only carried out by protected, internal stored procedures, which are not accessible directly from the user interface and can only be invoked by our internal web services.

In order to preventing operator errors, our Registry software incorporates the following design:
- applies validation on all user inputs to ensure that only valid details are submitted for processing;
- displays confirmation of user input to help the user spot any errors that have been made;
- implements an internal approval process for secondary approval for relevant operations before submitting the details to the ITL for processing.

Currently, the GRETA registry system for the EU Emissions Trading Scheme uses the security mechanism specified in the EU Regulation (Annex XV), i.e. basic authentication and SSL.

For Kyoto, digital certification and VPN will be used when the ITL becomes available. This will be included in a future phase of the GRETA registry development project.

3.4.6 List of information publicly accessible through the user interface to the National Registry

Publicly accessible information is maintained in accordance with the Commission Regulation of 21 December 2004 for a standardised and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision 280/2004/EC of the European Parliament and of the Council.

Information which is publicly accessible:

Information on accounts pursuant to 13/CMP.1 Annex II, paragraph 45
- Account name: holder of the account
- Account type: type of account (holding, cancellation or retirement)
- Commitment period: commitment period with which a cancellation or retirement account is associated

- Representative identifier: representative of the account holder, using the Party identifier (the two-letter country code defined by ISO 3166) and a number unique to that representative within the Party's registry
- Representative name and contact information: full name, mailing address, telephone number, facsimile number and e-mail address of the representative of the account holder

Information on holdings and transactions pursuant to 13/CMP.1 Annex II, paragraph 47
- Total quantity of AAUs issued on the basis of the assigned amount pursuant to Article 3, paragraphs 7 and 8

Information on legal entities authorised by Party pursuant to 13/CMP.1 Annex II, paragraph 48
List of legal entities authorised by the Party to hold ERUs, CERs, AAUs and/or RMUs under its responsibility.

Information which is confidential until 2013:

Information on holdings and transactions pursuant to 13/CMP.1 Annex II, paragraph 47
- Total quantity of ERUs, CERs, AAUs and RMUs in each account at the beginning of the year
- Total quantity of ERUs, CERs, AAUs and RMUs acquired from other registries and the identity of the transferring accounts and registries
- Total quantity of ERUs, CERs, AAUs and RMUs transferred to other registries and the identity of the acquiring accounts and registries
- Current holdings of ERUs, CERs, AAUs and RMUs in each account

Information which is not available because Slovenia did not have such holdings and transactions until the end of 2008:

Information on holdings and transactions pursuant to 13/CMP.1 Annex II, paragraph 47
- Total quantity of ERUs issued on the basis of Article 6 projects
- Total quantity of RMUs issued on the basis of each activity under Article 3, paragraphs 3 and 4
- Total quantity of ERUs, CERs, AAUs and RMUs cancelled on the basis of activities under Article 3, paragraphs 3 and 4
- Total quantity of ERUs, CERs, AAUs and RMUs cancelled following determination by the Compliance Committee that the Party is not in compliance with its commitment under Article 3, paragraph 1
- Total quantity of other ERUs, CERs, AAUs and RMUs cancelled
- Total quantity of ERUs, CERs, AAUs and RMUs retired
- Total quantity of ERUs, CERs, and AAUs carried over from the previous commitment period

Article 6 project information pursuant to 13/CMP.1 Annex II, paragraph 46
Slovenia does not have such a project.

The Internet address of the Slovenian National Registry is http://rte.arso.gov.si. To access the above information, users should select the Public Reports link at the bottom of the page.

4 POLICIES AND MEASURES

4.1 Preparation of policies and measures

In 2002, the Republic of Slovenia ratified the Kyoto Protocol, and committed itself to emit on a average yearly basis 8 % less greenhouse gases (GHG) in the period 2008–2012 than in the base year which were determined as the sum of CO_2, CH_4 and N_2O emissions in 1986 and F-gases in 1995. In the EU Accession Treaty, Slovenia adopted the same objective also as an EU member. This results in average annual target emissions of the amount of 18.726 Gg CO_2 eq, which was also considered in the preparation of emission reduction programmes.

In 2009, Slovenia adopted the renewed Operational Programme for Limiting Greenhouse Gas Emissions until 2012 (OP-TGP1) that was prepared on the basis of the decision by the Government at the time of adoption of the report on the implementation of the previous operational programme and succeeded the operational programme in 2006. The operational programme includes the selection of measures, by which Slovenia shall fulfil the Kyoto commitment, while its implementation is the responsibility of ministries responsible for individual areas. Guidance and harmonisation of activities for the implementation and possible changes and amendments were imposed on the newly-established Government Office of the Republic of Slovenia of Climate Changes in cooperation with the Ministry of the Environment and Spatial Planning. Included are domestic and Kyoto measures, since the projections indicate that the implementation of domestic measures will not suffice. The Kyoto measures will be necessary to cover approximately 1.1 Mt CO_2 eq of emissions annually. Besides measures, the operational programme also includes the monitoring plan for the implementation that stipulates the preparation of an annual report with an analysis of the implementation of individual measures through indicators included in the operational programme. Two reports have been prepared so far for the monitoring of the implementation of the previous operational programme. With the purpose of monitoring of the implementation of the operational programme, also a working group composed of representatives of ministries responsible for the implementation of individual measures was established in 2007. The group has been analysing the implementation of individual measures and familiarising itself with reports on that implementation.

In 2009, the Government of the RS established the Government Office of the Republic of Slovenia of Climate Changes, the tasks of which in the area of measures include: guidance of sectoral and intersectoral policies in the areas of mitigation, adaptation and technological-developmental transition to a low-carbon society; guidance of development policy-making to achieve the objectives of mitigation and adaptation to climate change and the making of priorities of sectoral and intersectoral programmes for the mitigation of climate change and adaptation; participation in the preparation of the technological-development policy and the promotion of a low-carbon platform; on the basis of a Government decision, preparation of act proposals and other acts referring to the area of climate change; participation in the preparation of views of line ministries for the preparation of regulations and other EU documents referring to the area of climate change; cooperation with the public and private sector in the implementation of programmes and measures; promotion and participation in the preparation of awareness, training and education programmes on climate change and monitoring of the implementation of policies, programmes and measures from the area of climate change.

4.2 EU Policy

As a Member State of the EU, Slovenia is committed to fulfilling the European climate policy and implementing common EU measures in this area (CCPM). Common measures include all areas representing the sources of greenhouse gas emissions; the links between them and national measures are set out in Appendix C.

The European Commission shall monitor the implementation of these measures through activities under Decision No 280/2004/EC concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, on the basis of which Member States are obliged to annually transmit the records data, and every two years prepare reports on measures and projections, while the Commission must annually prepare a report on the progress of the EU and individual Member States.

4.3 Multisectoral Measures

(M-1) GHG EMISSION ALLOWANCE TRADING (EU-ETS)

Sectors influenced by the implementation of the measure: *power and heat generation, consumption of energy in industry and construction, industrial processes*

Gas influenced by the measure: *CO_2*

The objectives of GHG emission allowance trading are the following: to support the implementation of the Kyoto Protocol commitments; prepare business entities for business conditions by considering the fulfilment of Kyoto commitments; enable lower costs for corporate entities by enabling a decrease of emissions where this is the cheapest; equalise the costs of the reduction of GHG emissions in the entire EU area by permitting intergovernmental trading – this shall minimise the limitation of competition and discrimination of the position of corporate entities (operators of plants responsible for GHG emissions) in the common internal EU market, and facilitate the reduction of GHG emissions in the future by upgrading innovation for the reduction of GHG emissions.
94 operators of plants in Slovenia are included in the GHG emission allowance trading scheme for the period 2008-2012. In 2007, the plants included in the system represented 43 % of total GHG emissions. Operators are distributed in four IPCC sectors: in energy supply and fugitive emissions they represented 94 % of sectoral GHG emissions, in industry and construction they represented 68 % of GHG emissions and industrial processes they represented 60 % of GHG emissions.

In the period 2008-2012, 8,167,941 t of CO_2 emission coupons annually (or 40,839,705 t CO_2 for the entire period) were allocated free-of-charge to existing operators of plants included in the system on the basis of the National Plan for the Allocation of Emission Coupons for the Period 2008-2012. 130,996 t of CO_2 emission coupons annually (or 654,980 t CO_2 for the entire period) are planned for operators of new plants.

The effect of the measure in 2010 was estimated at 1,394 Gg CO_2. The estimation was calculated on the basis of the difference between actual emissions of operators of plants according to the projection of emissions and the amount of allocated emission coupons.

For the operators of plants in the period 2013-2030 it was planned that the average annual amount of emission coupons for the period 2008-2012 shall decrease by 1.74 % annually

from 2010, which will effect in 21 % lower emissions[5] in 2020. In this way, the EU shall reduce the total emissions by 20 % with regard to 2005. In the case of a conclusion of a new international agreement, the EU has undertaken to reduce emissions by 30 %.

The Ministry of the Environment and Spatial Planning (MOP) is responsible for implementation, whereby the tasks in this area are primarily within the meaning of providing the implementation of provisions of the Environmental Protection Act referring to the emission allowance trading. The establishment of the system is under the responsibility of the EU.

(M-2) ENVIRONMENTAL TAX FOR THE POLLUTION OF AIR WITH CO_2 EMISSIONS

Sectors influenced by the implementation of the measure: *consumption of energy in industry and construction, consumption of energy in households, service and public sectors and agriculture*

Gas influenced by the measure: *CO_2*

The environmental tax for the pollution of air with CO_2 emissions (CO_2 environmental tax) was already introduced on 1 January 1997 on the basis of the Decree on the Tax for the Pollution of Air with Emissions of Carbon Dioxide under Article 80 of the Environmental Protection Act (Official Gazette RS 32/93, 44/95 – Constitutional Court decision, 1/69/99 – Constitutional Court decision, 56/99, 22/00 and 67/02). The indicated instrument was introduced with the purpose of internalising the external costs of air pollution with CO_2 emissions, and influencing, as an economic instrument, the reduction of air pollution with CO_2 emissions; in other words, reducing environmental pollution. The environmental tax is paid for the consumption of fuels and the incineration of combustible organic substances. The basis for the calculation of the environmental tax for the pollution of air with CO_2 emissions is the sum of units of pollution of the purchased amount of fuels or units of pollution of the burnt combustible organic substances. The price per unit of pollution is determined by the Government of the RS and amounts to 12.5 €/t of CO_2. With the purpose of promoting the implementation of measures, the legal basis for the environmental tax included until 31 December 2008 the possibility of exemption from payment in two cases:

- Operators of plants for the co-generation of heat and power,
- Operators of plants who have, regarding the operation of plants, concluded with the Ministry responsible for environmental protection an agreement on the reduction of pollution of air with CO_2 emissions.

Under OP TGP1, the Ministry of the Environment and Spatial Planning has undertaken to prepare the legal basis for the continuation of the measure of exemption from payment of the environmental tax when concluding an agreement on the reduction of pollution of air with CO_2 emissions in the period 2010-2012.

Furthermore, due to the complementarity of the measure with the EU-ETS system, the Decree on Environmental Tax includes a systematic exemption from payment of the environmental tax for operators of plants included in the EU-ETS systems (holders of permits for the discharge of greenhouse gases).

167 companies concluded the agreement on the reduction of emissions in the period 2005-2007, whereby the companies have undertaken to reduce specific annual emissions with

[5] The final version of the directive on the EU-ETS system after 2013 set the year 2005 as the base year, instead of 2010, which for Slovenia presents by 385 Gg CO2 eq or 4.6 % higher base year.

regard to referential emissions (the highest specific emission in the period 1999-2002) by 2.5 % until 2008.

The effect of the continuation of the exemption from payment of the environmental tax is for 2010 estimated at 45 Gg CO_2 eq.

(M-3) KYOTO FLEXIBLE MECHANISMS

Sectors influenced by the implementation of the measure: *power and heat generation, consumption of energy in industry and construction, industrial processes*

Gas influenced by the measure: *CO_2*

In order to fulfil the Kyoto Protocol commitments, Slovenia will have to use the Kyoto Flexible Mechanisms, since the last emission projections for the period 2008-2012 indicate a surplus in the amount of 1.10 Mt CO_2 eq/year.

In 2009, the Government of the RS will prepare a management programme for Kyoto units and Kyoto coupons and establish a system that will enable the provision of necessary purchasing funds.

The legal basis for the management of Kyoto units and Kyoto coupons will be the Environmental Protection Act.

The Republic of Slovenia will obtain the Kyoto units and Kyoto coupons by one of the following methods:

- by publishing a public call to invite natural and legal persons to submit an application to sell ERU or CER units by implementing a project of joint investment and following an appropriate procedure stipulated by the act proposal concluding an agreement on the sale of units with the operator of the joint investment;
- by purchasing allocated amounts units (AAU) from a signatory state of the Kyoto Protocol selling these units;
- by purchasing ERU, CER or emission coupons (EUA) on the market.

(M-4) TAXES AND CHARGES

Sectors influenced by the implementation of the measure: *consumption of energy in industry and construction, consumption of energy in households, service and public sectors and agriculture, transport*

Gas influenced by the measure: *CO_2*

TAX POLICY

The reason for the tax on energy is already at the starting point of the budget nature. Namely, in order to collect funds to finance the national budget expenses. The existing practice of determining taxes and tax policy from the sector of energy and energy products indicates that taxes on energy products are determined by the state with its fiscal policy, while the influence of environmental and energy policy on the determination of taxes, which is one of the more important mechanisms used to achieve the set objectives, is still not prominent. Taxation of energy may be one of the most important instruments at the state's disposal that can influence the final price of individual energy products and assist in the fulfilment of objectives of the environmental and energy policy. The tax policy is under the jurisdiction of the Ministry of Finance (MF).

EXCISE DUTIES

In the Republic of Slovenia, the taxation of fuels is regulated by the Excise Duty Act[6] that has been in force since 1 July 1999. Since 1 March 2007, excise duty on electric power is paid by end-users in the amount of 1 EUR/MWh. For the taxation of natural gas, Slovenia achieved the transitional period until 1 May 2014, since the immediate introduction of minimum excise duty in the prescribed amount could endanger the implementation of the set objective (increased consumption of natural gas) and the fulfilment of commitments undertaken by Slovenia with the ratification of the Kyoto Protocol. The amount of excise duties for liquid fuels is determined by the Government of the RS at the harmonisation of prices of oil derivatives with the movements of crude oil prices and the American dollar rate. The results of the excise duty policy for liquid fuels are indicated in the change of excise duty and the difference between the price of motor gasoline and gas oil and the approximation of retail prices of motor fuels to the European average. The excise duty on motor fuels has increased in the period after 2000; in recent years, the increase in excise duties has stopped, since the Government of the RS used the regulation of excise duties as an instrument for following its only unfulfilled Maastricht criterion – too high inflation; its reduction was the condition for entry into ERM 2 and the takeover of the euro. At the beginning of 2009, the Government of the RS increased excise duties on liquid fuels with the objective of increasing the national budget; this is why the prices of liquid motor fuels rose above the level of neighbouring countries with the exception of Italy. The excise duty policy is under the jurisdiction of the Ministry of Finance.

The Ministry of Finance must by the end of 2009 study the possibilities of a larger inclusion of the environmental component into the tax and excise duty policy, which will contribute to a clearer environment to promote environmentally-friendly fuels.

(M-5) AWARENESS, INFORMING, PROMOTION AND EDUCATION

Sectors influenced by the implementation of the measure: *consumption of energy in industry and construction, consumption of energy in households, service and public sectors and agriculture, transport, waste, agriculture*

Gas influenced by the measure: CO_2, CH_4, N_2O

There is still no systematic work of the Government of the RS and competent ministries for public awareness of the problems connected with greenhouse gas emissions. So far, the Ministry of the Environment and Spatial Planning and Ministry of Agriculture, Forestry and Food have dealt the most with this problem; less attention was devoted by the Ministry of the Economy, the Ministry of Transport and the Ministry of Finance, which are the key players for the implementation of the Kyoto Protocol. Non-governmental organisations played an important role in awareness and information, while the network of counselling offices ENSVET played an important role in counselling.

Efficient dealing with climate change will, in the long-term, demand radical changes in the key sectors of the economy; however, for this it shall be necessary to substantially change the expectations of society and comprehensively influence the change of habits and the way of thinking of the population.

6 Official Gazette of the RS, no. 84/98, official consolidated text 3, no. 25/09

An urgent precondition for successful action is to obtain appropriate knowledge and education for the measures that are necessary for the mitigation of and adaptation to the climate change.

The basic activities in the area of awareness and promotion include:

- Preparation of the national communication strategy
- Preparation and implementation of the plan for the long-term awareness of individual target groups
- Programme to promote low-carbon technologies
- Plan for the monitoring of awareness-promotional activities

The Ministry of the Environment and Spatial Planning is responsible for implementation.
The basic activities in the area of education include:

- Inclusion and integration of the content on the problems of climate change, sustainable development and relevant behaviour patterns in the curriculum of kindergartens, elementary and secondary schools as well as higher education, including programmes of lifelong education
- Inclusion and integration of the content on the problems of climate change, sustainable development and relevant behaviour patterns in the curriculum of colleges
- Substantively harmonised and quality programme of external educational activities for youth on the problems of climate change
- Strengthening of undergraduate education in this area
- Promotion for the strengthening of undergraduate education

The activities are under the jurisdiction of the Ministry of Education and Sport (MES) and the Ministry of Higher Education, Science and Technology (MVZT).
The basic activities in the area of training include:

- Training programme for decision makers in public administration
- Training programme for energy measures
- Training programme for transport measures
- Training programme for agriculture and forestry measures
- Training programme for waste management measures
- Training programme for management-administrative structures on technical and management-administrative issues with regard to the reduction of greenhouse gas emissions for the implementation of individual measures
- Study of possibilities to establish a wide and dispersed network of information centres for assistance in the implementation of measures for the reduction of emissions and adaptation to climate change

The activities are under the jurisdiction of various ministries covering different areas.
3.33 million EUR annually is planned for this measure in the EEAP.

Table 4.3.1: Summary of the description of multisectoral measures

Item	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-1	GHG EMISSION ALLOWANCE TRADING (EU-ETS)	Reduction of CO_2 emissions where this is costly most efficient	CO_2, (after 2012 also F-gases)	Economic, other	Implemented	MOP	-	-	116[7]	1.394	2.187	3.242	36. Emission trading scheme
M-2	ENVIRONMENTAL TAX FOR THE POLLUTION OF AIR WITH CO_2 EMISSIONS	Internalisation of external costs of air pollution with CO_2 emissions	CO_2	Fiscal	Implemented, adopted	MOP	-	-	19[8]	45	45	45	35. CO_2 - tax
M-3	KYOTO FLEXIBLE MECHANISMS	Fulfilment of the Kyoto commitment	CO_2	Economic, other	Adopted	Government of the RS	-	-	-	1.070	-	-	37. Clean development mechanism and joint implementation
M-4	TAXES AND CHARGES	Influencing the price of fossil fuels to create a stimulating environment for a higher consumption of environmentally-friendly fuels	CO_2	Fiscal	Implemented, adopted	MF	-	-	-	-	-	-	14. Introduction of excise duties on fossil fuels and electrical energy 15. Excise duties on motor fuels
M-5	AWARENESS, INFORMING, PROMOTION AND EDUCATION	Creating an environment favourable to the implementation of GHG emission reduction measures	CO_2, N_2O, CH_4	Information, Education	Implemented, adopted	Various ministries	-	-	-	-	-	-	6. Information, education and awareness activities

[7] The average difference between the allocated coupons and actual emissions in the first trading period 2005-2007.

[8] The estimation of effects was based only on concluded agreements on the reduction of air pollution with CO2 emissions, by which companies exercised the possibility of exemption from the payment of taxes. This possibility was introduced in April 2005; therefore, the estimate effect is for 2006.

4.4 Energy

4.4.1 Energy Supply

(M-6) INCREASE IN THE ENERGY EFFICIENCY OF POWER AND HEAT GENERATION IN LARGE COMBUSTION PLANTS

Sectors influenced by the implementation of the measure: *power and heat generation*

Gas influenced by the measure: CO_2

Due to the expiry of life-expectancy of large combustion plants and requirements of the Directive on Integrated Pollution Prevention and Control (96/61/EC), the Directive on the Limitation of Emissions of Certain Pollutants into the Air from Large Combustion Plants (2001/80/EC) (according to the new directive proposal in 2006, this directive shall be stricter) and the Directive on National Emission Ceilings for Certain Air Pollutants (2001/81/EC), it shall be necessary to replace the majority of large power generating units in Slovenia with modern and environmentally-acceptable units with substantially higher efficiency, increase the range of power production in CHP's with high efficiency, and carry out, where necessary, a partial change of fuel – primarily the partial transition to natural gas[9] and higher consumption of wood biomass during co-incineration.

The following objects will be constructed in the period until 2020:

- Šoštanj thermo power plant: construction of a new coal unit - – TEŠ 6 by 2014 (closure of units 1 and 2, and operating of units 3 and 4 in cold reserve);
- Trbovlje thermo power plant: construction of a gas steam unit – final decision hasn't been adopted yet; however, at the end of 2009 coal extraction in the Trbovlje Hrastnik mine will be finished, while the life-expectancy of the existing unit will expire as well (after 2012):
- CHP Ljubljana:
    - Investment in the co-incineration of wood biomass in sector 3 (replacement of 15 % of coal by wood biomass, realised in 2008);
    - Partial transition to natural gas – construction of a gas turbine (70 MW_{el}) to sector 2 until 2012, and an increase in generated electrical energy in CHP with high efficiency with 660 GWh (first phase).

The main mechanisms for the fulfilment of the measure implementation are: **GHG emission allowance trading** (all large combustion plants are included in the trading scheme, which significantly influences their competitiveness with regard to the price of emission coupons and consequently encourages modernisation, especially after 2012, when the operators of plants for power generation will have to purchase all necessary coupons at auctions), **efficient operating of energy markets** (environmental inefficiency reduces the competitiveness of plants in the open market), **requirements of environmental protection permits** (according to the proposal of the amendment of directives (Directive 96/61/EC; 2001/80/EC), in 2016, the requirements to achieve the emission limits shall become significantly stricter, which will disable the operating of inappropriate plants after this year), **new supporting scheme for electrical energy generated in combined heat and power generation with high efficiency** (inclusion of production plants with the power outputs up

[9] Data source: Indicative development plan of the energy sector, data by investors.

to 200 MW presents a high development encouragement for the technological modernisation of older plants, and primarily a significant increase of the scope of power generation in CHP with high efficiency), **new supporting scheme for electrical energy generated from renewable energy sources** (support for highly-efficient use of wood biomass and other renewable sources also creates a stimulating framework for their use in large combustion plants), **protection of domestic sources** (EU Legislation enables the subsidising of electricity supply from domestic energy sources of up to 15 % of electricity consumption on the basis of annual tenders, where it is reasonable to include additional environmental criteria of the best available techniques (BAT – Best Available Technologies),which will encourage the implementation of the modernisation of plants), **provision of the reliability of electricity supply** (Directive 2005/89/EC10) (Possibilities of additional promotion of the state by non-discriminatory procedures to encourage the necessary new efficient and environmentally-friendly generation capabilities. This instrument is currently not in use in Slovenia), **provision of financial funds** (provision of investment funds and assistance in fierce economic conditions (state-owned energy companies may keep the distributable profit intended for new investments; through guarantees, the state shall ensure the borrowing of long-term loans for priority investments in large plants for power generation – the companies shall pay the state a premium for the takeover of risk in accordance with the regulations on EU state aid; for the implementation of investments, it shall be necessary to study the possibility of strategic partnerships, etc.).

The technological modernisation of thermo plants will additionally influence the production of electricity for the amount of 1.5 TWh.

(M-7) PROMOTION OF COMBINED HEAT AND POWER GENERATION WITH HIGH EFFICIENCY

Sectors influenced by the implementation of the measure: *power and heat generation, consumption of energy in industry and construction, consumption of energy in service and public sectors, agriculture and households*

Gas influenced by the measure: CO_2

In 2009, the Ministry of the Economy (ME) renewed the promotion scheme for combined heat and power generation (CHP). The renewal is a result of the bad support of CHP in the industry and service sectors, which is why Slovenia stayed behind the objectives in this area, and remarks of the European Commission regarding state aid. The government confirmed the legislative framework for the scheme[11] on 7 May 2009, while the promotion scheme must be confirmed prior to the commencement of the implementation by the European Commission.

The measure includes a new system of supporting the electricity produced in CHP plants in two forms:

Provided purchase of electricity, purchased by the supporting centre notwithstanding the price of electricity on the market;

[10] Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment.

[11] Regulation on supports for the electricity generated in cogeneration with high efficiency (OG RS, no. 37/09), Regulation on determination of the amount of electricity from cogeneration of heat and electricity which is generated with high efficiency and determination of efficiency of transformation of energy from biomass (OG RS, no. 37/2009)

Operating support for electricity produced in CHP, sold by producers on the market on their own or used for their own consumption.

CHP plants with a nominal electric power of 1 MW may select between the provided purchase or financial aid for running operations. CHP plants with a nominal electric power higher than 1 MW will be able to apply for financial assistance only for current business operations. CHP plants with high efficiency up to 200 MW of electric power will be eligible for support, notwithstanding if they are part of the district heating system or in the industrial sector. New and principally new CHP production plants[12] with high efficiency having a valid declaration for the production plant will be eligible to obtain support. Supports are provided for 10 years or for principally new plants also for a shorter period that represents the difference between 10 years and the actual age of the production plant.

In order to support the development of CHP, an appropriate tax and price policy with gradual internalisation of external costs will be provided, as well as appropriate treatment of CHP within the framework of the GHG emission allowance trading scheme (EU-ETS).

The installation of CHP units is also encouraged by the Eco fund – by providing loans for investments with favourable interest rates.

In order to promote the production of electricity in CHP units with high efficiency, the Energy Agency of the Republic of Slovenia has been granting guarantees of origin.

(M-8) PROMOTION OF ELECTRICITY PRODUCTION FROM RENEWABLE ENERGY SOURCES

Sectors influenced by the implementation of the measure: *power and heat generation, industry and construction, service and public sector*

Gas influenced by the measure: CO_2

The measure was designed similarly to the promotion of CHP (M-7). The measure refers to production plants with energy technology using the following renewable energy sources: energy potential of watercourses, wind energy used in land production plants, solar energy used in photovoltaic power plants, geothermal energy, energy obtained from wood biomass and biologically degradable waste, energy obtained from landfill gas, energy obtained from gas from sludge from the treatment of waste water, energy obtained from biologically degradable waste, and other sources that comply with the RES from the Energy Act.

When determining the support for which the RES production plants are eligible, it shall be considered to what extent the renewable energy sources are utilised sustainably and if the produced heat is used in a beneficial manner (in the case of CHP from RES). RES production plants with the nominal electric power of 5 MW may select between the provided purchase or financial aid for running operations. RES production plants with a nominal electric power higher than 5 MW will be able to apply for financial assistance only for current business operations.

Prior to the change of the mechanism of electricity purchase prices from qualified producers, RES production plants without power limitations were eligible to obtain support with the exception of heating plants in district heating, municipal waste heating plants and hydroelectric power plants where support was provided for plants with electric power up to

[12] CHP production plants that were renewed in the last 10 years or where the investment value of renewal represents more than 50 % of investment in the same new plant shall also be considered as new or principally new.

10 MW_{el}. Under the new regulation, RES production plants with electric power up to 125 MW_{el}. will be eligible for support as well.

The support is provided for 15 years or for principally new plants also for a shorter period that represents the difference between 15 years and the actual age of the production plant.

The production of electricity from RES is also encouraged by the Eco fund – by providing loans for investments with favourable interest rates.

Furthermore, the construction of hydroelectric power plants has been continuing in Slovenia. On the lower stream of the Sava, a chain of five hydroelectric power plants is being built. Two hydroelectric power plants have already been built (HE Boštanj in 2006 and HE Blanca in 2009). By 2012, HE Krško will be built, and the remaining two hydroelectric power plants by 2015 and 2018 respectively. The total annual production is estimated to be 721 GWh, and 275 GWh for already finished hydroelectric power plants. In 2009, the construction of the pumping hydroelectric power plant Avče is being finished.

In order to promote the production of electricity from RES, the Energy Agency of the Republic of Slovenia has been granting guarantees of origin. Furthermore, more suppliers of electricity are selling environmentally-friendly energy through special trademarks at slightly higher prices. The collected financial funds shall be used for the construction of new facilities for the utilisation of RES.

4.4.2 Energy Use

(M-9) PROMOTION OF EFFICIENT ENERGY USE IN INDUSTRY

Sectors influenced by the implementation of the measure: *consumption of energy in industry and construction*

Gas influenced by the measure: CO_2

The promotion of efficient energy use in industry has been implemented as a priority in the field of electrical energy, since the average annual growth of electrical energy in the period 2000-2007 amounted to 4.5 %. The largest share of electrical energy is used for electro engine drives (around 50 %, almost half of this for pumps and ventilators), production of compressed air (around 10 %), lighting (around 8 %), preparation of cooling capacities (around 5 %), ventilation and air conditioning (around 5 %), and other for various purposes (for instance, for technological processes).

The Ministry of the Economy must by the end of 2009 prepare an instrument for the improvement of energy efficiency in industry with direct financial incentives for the amount of 10 % of investment funds for the promotion of the use of energy efficient technologies, such as: energy efficient electro motors, variable speed drive for motors, energy efficient pumps and ventilators, an energy efficient system for the preparation of compressed air and economical lighting. Moreover, the implementation of measures will be promoted through energy efficiency programmes for end consumers (DSM), for which the legal bases will also be prepared by the end of 2009.

The implementation of the promotion of efficient energy use is stipulated also in the Energy Efficiency Action Plan (EEAP) in which public funds for the amount of 15 million EUR in the period 2009-2012 are provided for this purpose. Part of the implementation of the EEAP represents also the tender of the Eco Fund, by providing loans with favourable interest rates

for environmental investments of legal persons and sole proprietors in measures of efficient energy use in production and business facilities[13].

Potential for the improvement of efficient energy use in industry lies also in the consumption of heat and fuels. The promotion of the efficiency increase is implemented through horizontal measures: environmental tax for the pollution of air with CO_2 emissions, taxes and education, training and promotion (energy management). By the end of 2008, the direct incentive for the improvement of efficiency was represented by the exemption from payment of the CO_2 environmental tax for persons liable for tax who have concluded with competent authorities an agreement, by which they have undertaken to reduce emissions by at least 2.5 % by the end of 2008 with regard to the reference year. Agreements were concluded by 113 persons liable for tax from the industry sector, which represented in 2007 25 % of emissions in the industry and construction sectors. In 2009, the Ministry of the Environment and Spatial Planning was obliged to prepare the basis for the continuation of this measure.

(M-10) PROMOTION OF THE USE OF RENEWABLE ENERGY SOURCES AS A HEAT SOURCE

Sectors influenced by the implementation of the measure: *consumption of energy in industry and construction, consumption of energy in households, service and public sectors and agriculture*

Gas influenced by the measure: *CO_2*

Besides financial incentives for investments (subsidies and favourable loans) in environmentally-friendly heat generation from renewable energy sources, state programmes also include regulations and energy counselling as well as awareness, informing and education of energy users and other target groups.

Measures of promoting the use of RES for heat generation are planned within the framework of two priority policies of the Operational Programme for Environmental and Transport Infrastructure Development (OP ROPI): energy-saving restoration and sustainable construction of buildings and innovative systems for local energy supply. The first policy includes the following measures: the restoration of heating systems (installation of wood biomass fired boilers), the installation of solar heating systems, the installation of heat pumps and preparation of sanitary warm water as well as the installation of systems for combined heat and power generation. The other policy includes incentives in the following technological areas: wood biomass district heating systems, group and micro district heating systems, including the systems for combined heat and power generation on wood biomass; modern boilers and systems for combined heat and power generation on wood biomass in industry; systems for heat and power generation on biogases and heat and power generation from geothermal energy. The funds are granted by the Ecofund and the Ministry of the Economy, to where the Efficient Use and Renewable Energy Sources Division transferred.

The key instrument for the promotion of heating with the use of renewable energy sources is also regulations. Higher use of renewable sources in buildings shall be achieved with the Rules on Energy Performance of Buildings that stipulates a mandatory 25 % share of RES in the supply of buildings for new and restored buildings. The Rules will be upgraded for reasons of better implementation of requirements; therefore, the implementation was postponed to 1 July 2010. The Ministry of the Environment and Spatial Planning is preparing the legislation from this area. Besides regulations and financial incentives, in order to

[13] Investments in reconstruction or change of lighting, hydraulic and pneumatic aggregates, electro-motor drives and their steering systems, heating and cooling systems, ventilation by returning heat of waste air, by which at least a 25 % saving of energy or investments in technology lines, machines and equipment is achieved.

achieve better results other complementary instruments shall be necessary – an appropriate tax and price policy as well as education and promotion programmes.

In the period 2009-2012, 22.536 million EUR are stipulated in the OP ROPI for the implementation of promotion of the use RES as a heat source.

(M-11) PROMOTION OF ENERGY EFFICIENCY IN THE PUBLIC SECTOR

Sectors influenced by the implementation of the measure: *consumption of energy in the public sector*

Gas influenced by the measure: CO_2

The selection of instruments for the improvement of energy efficiency in the public sector, planned in the EEAP, includes the financial incentives for investments in:

- Energy efficient restoration and sustainable construction of buildings (22 million EUR in the period 2009-2012),
- Energy efficient heating and ventilation systems (22 million EUR in the period 2009-2012),
- Efficient use of electrical energy (10.5 million EUR in the period 2009-2012).

Besides these instruments, green public procurements shall be introduced for the public sector. The Green Public Procurement Action Plan (AN ZeJN) has been prepared. An important instrument in the public sector shall also be the monitoring of the consumption of energy (energy accountancy) in public buildings. Other instruments include: promotion of the implementation of energy reviews and feasibility studies for investments in RES, an increase in the information, awareness and education of potential investors, architects and other groups, the introduction of contractual reduction of energy costs, implementation of energy efficiency programmes for end consumers by companies for energy supply – DSM.

(M-12) ENERGY LABELLING AND MINIMUM STANDARDS FOR PRODUCTS AND DEVICES

Sectors influenced by the implementation of the measure: *consumption of energy in the public sector, service sector and households, consumption of energy in transport*

Gas influenced by the measure: CO_2

In 2005, the Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 on establishing a framework for the setting of ecodesign requirements for energy-using products was adopted, establishing the framework for the setting of ecodesign requirements for energy-using products. The requirements have been prepared for the following products: hot-water boilers on liquid or gas fuel, warm water heaters on liquid or gas fuel or electrical energy, computers and monitors, printers, scanners, photocopying apparatus, television sets, chargers or adapters, lighting in offices, street lighting and lighting in households, air-conditioning appliances in households, electrical motors, refrigerators and freezers for service sectors and households, household washing machines and dishwashers, TV-communicators, solid fuel fired boilers, dryers, vacuum-cleaners and transformers. The proposal for amendments of the Directive on ecodesign framework for energy-using products stipulates the minimum standards for a wider selection of products connected with energy use (for instance, equipment utilising water). In 2009, a new working plan was adopted containing additional products, for which minimum standards shall be prepared as a priority.

By April 2009, the first five regulations were adopted, setting minimum requirements for the appropriate ecodesign of products, after the entry into force of the EuP Directive; namely, for the following products: simple set-top boxes (Regulation 107/2009), non-directional household lamps (Regulation 244/2009), fluorescent lamps without integrated ballast, high intensity discharge lamps and ballasts as well as luminaries able to operate such lamps (Regulation 245/2009), and no-load condition electric power consumption and average active efficiency of external power supplies (Regulation 278/2009). Furthermore, a regulation was adopted setting the requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment (Regulation 1275/2008). The result of this legislation shall be a significant reduction in the energy consumption of devices in standby mode, since the devices in this mode will be able to use maximum a 2 or 1 W after 2010, and a maximum of 1 or 0.5 W after 2014; further results shall be the cessation of the sale of inefficient tubes (»regular« lamps, etc.).

In line with the indicated activities, a restoration and expansion of the energy labelling of products has been implemented. The restoration of the system is necessary since the technological framework exceeded the framework of the basic system. The proposal of the new system was published by the Commission at the end of March 2009. In the proposal, the new system is designed in such a manner that is it open upwards; in other words, it enables the adding of new classes that are better than class A according to the system A-20%, A-40%, etc. Class A-20% contains products that use 20 % less energy than products in class A. The new proposal also stipulates the minimum requirements for refrigerators, washing machines and television sets. The expansion of the energy labelling also stipulates the labelling of construction products (for instance, windows). The indicated activities are conducted at the EU level.

Purchase of energy efficient apparatus (class A or higher) is also promoted by the Eco fund by favourable loans.

These measures shall have a significant influence on efficient electrical energy consumption.

(M-13) PROMOTION OF ENERGY EFFICIENCY IN HOUSEHOLDS AND THE SERVICE SECTOR

Sectors influenced by the implementation of the measure: *consumption of energy in the public sector, service sector and households*

Gas influenced by the measure: CO_2

In 2008, the Government of the Republic of Slovenia adopted the new Rules on Efficient Energy Use in Buildings (PURES), OG RS, no 93/2008 that stipulate ambitious requirements in the area of the energy efficiency of buildings and the use of renewable energy sources reflected in the requirements for better insulation of walls and the installation of energy-efficient devices and systems as well as mandatory use of renewable energy sources to the extent of at least 25 % of needed power of devices. The Rules shall enter into force on 1 July 2010.

Within the framework of additional technical requirements, the Rules stipulate stricter permitted heat characteristics of walls (for instance, U_{WALL} = 0.28 W/m2K) and windows (U_{WINDOW} = 1.3 W/m2K), make stricter requirements for the air permeability of walls, especially in mechanical ventilation, indirectly requires mandatory heat return of waste air, and mandatory mechanical ventilation in new buildings. The novelty is the setting of minimum requirements in the area of cooling of buildings. Only low-temperature heating systems and condensing gas boilers are permitted. The installation of gauges or heat and cold dividers is mandatory. For the preparation of hot water, central preparation with a heat

reservoir in combination with a solar system and heat pump is required. For new constructions, the use of modern technology of lamps shall be required, while the average power of installed lamps is limited as well.

Table 4.4.1: Permitted necessary heat for heating of buildings by periods of the validity of regulations

Validity period	Necessary heat for heating
1980 - 2002	< 100 kWh/m^2 year,
after 2002	< 70 kWh/m^2 year,
Construction practice 2000-2008	< 30-50 kWh/m^2 year,
PURES (estimation, the power of plants is being reviewed)	2-25 kWh/m^2 year

In 2009, a draft of the Rules on Energy Certificates was prepared that establishes the system of issuing of building energy certificates together with the rules on education, licences and register of independent experts. Energy certificates shall be mandatory for new buildings, buildings with a total useable plan view surface over 1000 m^2, buildings owned by the state or local communities and used by public authorities or local community authorities, and for existing buildings being sold or leased. The preparation of the legislation is under the responsibility of the Ministry of the Environment and Spatial Planning.

Direct promotion of investments in energy efficient restoration and sustainable construction of buildings as well as energy efficient heating systems under the EEAP is implemented by the Eco fund. In 2007, a tender for the following areas was opened: installation of solar heating systems, comprehensive energy restoration of existing residential buildings and construction of residential buildings in low-energy or passive technology; in 2009, the following areas were added: installation of combustion plants for central heating on wood biomass, thermal insulation of the entire facade and replacement of the external building furniture in the existing one, two or multi-dwelling buildings. Furthermore, the Eco fund also provides favourable loans for investments in measures of the efficient use of energy.

For the purpose of promoting investments and the introduction of energy certificates, 115.64 million EUR shall be necessary in the period 2009-2012.

Significant energy savings may also be achieved by the regular checking of smaller combustions plants, which also ensures their optimum operation. In accordance with the legislation, chimney sweeps shall be obliged to perform annual checks.

The provision of the Act Amending the Energy Act from 2008 shall significantly influence the behaviour of consumers of heat in multi-dwelling buildings with regard to efficient management; namely, the owners of individual parts of multi-dwelling buildings must by 1 October 2011 provide the measurement of actual heat consumption. After this date, the lump-sum accounting of consumption shall cease to exist. Possible savings amount to 20 %.

Table 4.4.2: Summary of the description of energy measures

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-6	INCREASE IN THE ENERGY EFFICIENCY OF POWER AND HEAT GENERATION IN LARGE COMBUSTION PLANTS	Reduction of CO_2 and other emissions (air pollutants) in electricity production	CO_2	Regulatory, Other	Implemented	Holding Slovenske elektrarne, TE-TOL	-	-	0	322[14]	1.409	1,430	2. Opening the electricity market 3. Opening the natural gas market
M-7	PROMOTION OF COMBINED HEAT AND POWER GENERATION WITH HIGH EFFICIENCY	Increasing the electricity production in CHP units	CO_2	Economic, regulatory	Implemented	ME	-	-	65	164	434	716	1. Promotion of electricity production from RES and CHP
M-8	PROMOTION OF ELECTRICITY PRODUCTION FROM RENEWABLE ENERGY SOURCES	Increasing the electricity production from RES	CO_2, CH_4	Economic, regulatory	Implemented	ME, HSE, AGEN-RS	-	-	86	236[15]	602	819	1. Promotion of electricity production from RES and CHP 12. Certification of energy source 27. Promotion of biogas for electricity and heat production
M-9	PROMOTION OF EFFICIENCY ENERGY USE IN INDUSTRY	Efficient use of energy in industry	CO_2	Voluntary, economic, regulatory	Implemented, adopted	ME, MOP, Ecofund	-	-	no data	21	21	21	21. Efficient energy use in industry[16] 23. IPPC Directive 13. Demand side management

[14] The effects of the measure also consider the construction of gas turbines in TEŠ 2x42 MW, implemented in 2008.

[15] Besides the effect of the measure due to the lower use of fossil fuels, the effect of lower emissions of methane from manure facilities due to the installation of anaerobic digestors on farms and large farms is also considered.

[16] The other two measures in the industry sector, 22. Promotion of the introduction of environmental management systems by ISO 14001 and inclusion in the EMAS system, and 24. Labelling of products – ecolabel, are still being implemented; however, due to smaller effects they are not indicated in this report.

4.4.2: Continuation

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-10	PROMOTION OF THE USE OF RENEWABLE ENERGY SOURCES AS A HEAT SOURCE	Increasing the use of RES as a heat source	CO_2	Economic, Regulatory	Implemented, adopted	ME, Ecofund, MOP	-	-	11[17]	108	297	424	5. Incentives for implementing EEU measures and for investing in RES
M-11	PROMOTION OF ENERGY EFFICIENCY IN THE PUBLIC SECTOR	Increasing the energy efficiency in public sector	CO_2	Economic, Regulatory	Implemented, adopted	ME, Government, MPA, GODEA	-	-	n.p.	101	230	378	
M-12	ENERGY LABELLING AND MINIMUM STANDARDS FOR PRODUCTS AND DEVICES	Higher energy efficiency of the energy consumption with the emphasis on electrical energy	CO_2	Regulatory, informing, economic	Implemented, adopted	EU, Ecofund	-	-	n.p.	13	35	58	7. Energy labelling of household appliances
M-13	PROMOTION OF ENERGY EFFICIENCY IN HOUSEHOLDS AND THE SERVICE SECTOR	Higher energy efficiency in buildings	CO_2	Economic, Regulatory	Implemented, adopted	MOP, Ecofund	-	-	22[18]	142	262	402	8. Regular inspections of small boilers and air-conditioning appliances 9. Thermal insulation and energy labelling of buildings 10. Cost accounting for heating by actual consumption

[17] Only the effect of measures implemented by favourable loans of the Ecofund in 2004 and 2005 and subsidizing of the Efficient Use and Renewable Energy Sources Division in 2002-2005.

[18] Effect of the stricter standard on the efficiency of buildings from 2002 with regard to the preliminary and incentives for the restoration and replacement of boilers in the period 2002-2005.

4.5 Transport

(M-14) REDUCTION OF EMISSIONS OF PASSENGER MOTOR VEHICLES

Gas influenced by the measure: *CO_2*

The measure is based on three pillars:

- Obligations of the car industry regarding the improvement of fuel economy,
- Awareness of people with regard to fuel consumption and emissions of vehicles,
- Promotion of efficiency of fuel consumption of vehicles with tax measures.

In 2007, the European Commission prepared a legislative proposal that would force the car industry in the fulfilment of objectives regarding the average emissions of new automobiles. Namely, a voluntary agreement did not provide satisfactory results. The legislation was adopted in December 2008; in accordance with its provisions, the average emissions of new vehicles after 2015[19] shall not be allowed to exceed 130 g of CO_2/km, while an additional reduction of emissions by 10 g CO_2/km will be achieved by the improvement of tyres[20] and the use of biofuels.

Informing and awareness is mostly carried out through the labelling of fuel consumption of personal vehicles. Slovenia transferred the Directive 1999/94/EC[21] relating to the availability of consumer information on fuel economy and CO_2 emissions to the Slovenian legal order by the Rules on consumer information on fuel economy and CO_2 emissions in respect of new passenger cars (Official Gazette of the RS, no. 86/2003, 43/2004). In accordance with the Rules, the suppliers of personal vehicles must provide data on fuel consumption and emissions of vehicles at the point of sale and in the promotional leaflet. Furthermore, the Ministry of the Environment and Spatial Planning must provide for the issue of a manual of fuel economy.

The purchase of electric or hybrid vehicles is also encouraged by Eco fund by favourable loans for legal persons and sole proprietors as citizens.

The third pillar are tax measures. In June 2009, the Government of the RS adopted a proposal of the Act Amending the Motor Vehicles Tax Act that introduces, among other things, progressive tax rates for motor vehicles with regard to CO_2 emissions, additional taxation of diesel vehicles with solid particle emissions higher than 0,005 g/km and motor vehicles with a lower emission level than Euro 4, and since 1 January 2010 lower than Euro 5. New tax rates shall enter into force with the enforcement of the Act with the exception of personal vehicles with CO_2 emissions between 150-210 g/km, for which a transitional period will remain in force by 1 January 2011. Under OP GHG-01, the Ministry of Transport must also change the calculation of the amount of annual tax for the use of vehicles in road transport; namely, that the amount shall also be dependent on the CO_2 emissions of vehicles and EURO emission rates.

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[19] By2015, the share of new vehicles that must achieve this objective will gradually increase. In 2012, the share shall amount to 65 %, in 2013 to 75 %, in 2014 to 80 %, and in 2015 to 100 %. In the case of non-compliance with the objectives, the manufacturers of vehicles shall be obliged to pay a fine.

[20] After 1 November 2012, all new tyres will need to be equipped with information on efficiency, noise level and adhesion on wet roads; furthermore, they will be classified in classes similar to household apparatus.

[21] Directive 1999/94/EC of the European Parliament and of the Council of 13 December 1999 relating to the availability of consumer information on fuel economy and CO2 emissions in respect of the marketing of new passenger cars.

Regular measurements of the structure of exhaust gases introduced in 2003 within the framework of roadworthiness tests also significantly influence the efficiency of existing vehicles.

(M-15) PROMOTION OF THE CONSUMPTION OF BIOFUELS

Gas influenced by the measure: CO_2

The consumption of biofuels is encouraged by two instruments: exemption of the entire excise duty for motor fuels in purified form, and a maximum 5 % exemption in the case of standardised fuels with content of biofuels, and target shares for biofuels in the total energy of motor fuels placed on the market for an individual calendar year for fuel distributers for motor vehicles. If the distributer doesn't achieve the target share in an individual year, the difference is transferred to the following year. Distributers report to the Environmental Agency of the Republic of Slovenia each year by the end of March on the amount of biofuels placed on the market.

Decree on the Promotion of the Use of Biofuels and Other Renewable Fuels for the Propulsion of Motor Vehicles for the Period 2008-2012 stipulates the following minimum target shares for biofuels in the entire consumption of energy for motor vehicles: 3.0 % in 2008, 4.0 % in 2009, 5.0 % in 2010, 5.5 % in 2011 and 6.0 % in 2012. Since the actual situation is staying behind the objectives, the following minimum values of biofuels placed on the market were estimated in the report on the consumption of biofuels in transport in the Republic of Slovenia in 2007: 1.5 % in 2008, 2.0 % in 2009, 3.0 % in 2010, 4.0 % in 2011 and 5.0 % in 2012. Problems of achieving the target shares are also a result of the fact that Slovenia doesn't have any significant production capacities for biofuels.

The Ministry of Agriculture, Forestry and Food promotes with grants per hectare the production of energy plants.

Furthermore, the testing of the use of biodiesel in buses of municipal passenger transport in Ljubljana is being carried out within the project CIVITAS II - MOBILIS.

(M-16) PROMOTION OF THE USE OF PUBLIC TRANSPORT

Gas influenced by the measure: CO_2

Within the framework of the Resolution on National Development Projects, the Ministry of Transport is carrying out the project Integrated public passenger transport, the objective of which is to integrate various types of public transport. The project will be finished by 2012 (2013), and includes the following steps: preparation of the zone system, tariff system, harmonisation of bases on the local and state level, monitoring and supervision system and informing of users. The new concession system that will change the financing conditions and specify the conditions and obligations of the state and transport operators will also be connected with the project. In preparation within the project is also the pilot project with the Regional Development Agency of the Ljubljana Urban Region.

The objective of the project is to stop the decreasing trend of public passenger transport by 2012.

In the area of public transport, the EEAP stipulates the implementation of the following measures:

- Financial incentives and stimulating subsidization of public passenger transport,

- Promotion, awareness and informing on the advantages of public passenger transport,
- Financial instrument for the restriction of access of personal vehicles into city centres (selective parking fee, dense tolls and vignettes)

Furthermore, also important are measures for the promotion of cycling, where the EEAP stipulates financial incentives for the construction of bicycle lanes and supporting facilities, the removal of barriers for the carrying of bicycles onto trains/buses, and the financing of promotional and educational activities.

In accordance with the OP GHG-01, the Ministry of Transport in cooperation with the Ministry of the Environment and Spatial Planning as well as municipalities shall prepare an action plan for the development of public passenger transport.

In previous years, a positive trend has been noticeable in rail transport in contrast to road public transport, which is a result of the active approach of Slovenske železnice Ltd. For the further development of this segment of public transport, investments in the improvement and expansion of rail network shall be necessary, which is specified under the measure of sustainable freight transport.

(M-17) SUSTAINABLE FREIGHT TRANSPORT

Gas influenced by the measure: CO_2

The basis for the implementation of the measure of sustainable freight transport, which is possible only with a high share of railways in freight transport, is a modern railway infrastructure. Within the framework of the project, the construction of the following new tracks is being implemented: Trst-Divača, Koper-Divača, Divača-Ljubljana and Ljubljana-Zidani Most, and modernisation and upgrade for speeds of up to 160 km/h in the existing Pragersko-Ormož-Hodoš track. The result of the project is the increased capabilities of the railway infrastructure. The projects will be concluded by 2023.

Furthermore, the OP GHG-01 also includes among its measures for the promotion of sustainable freight transport the road tolling in free traffic flow and the preparation of tolls for cargo vehicles for the use of toll roads that will also consider external costs.

(M-18) GHG EMISSIONS FROM TRANSIT TRANSPORT

Gas influenced by the measure: CO_2

Due to its geographical location at the crossing of the European corridors V and X, Slovenia is highly exposed to transit transport. In addition, due to Slovenia's small size the increase in transit transport, along with the lower prices of liquid fuels in comparison with neighbouring countries, has a strong influence on the sales of liquid motor fuels in the Republic of Slovenia and on the GHG emissions respectively.

In the short-term, it is possible to achieve a decrease in the purchase of motor fuels by transit transport by increasing the excise duty to the level that would provide a higher price of motor fuels in comparison with neighbouring countries; however, this would present a large loss of income for the state treasury.
A long-term solution to the problem is possible only by redirecting the road freight transport to railways; however, a precondition for this is a modern and reliable railway, the construction of which has commenced.

In 2008, fuels sold to transit transport represented at least 17 % of the entire amount of sold fuels. With regard to 2007, this share increased by at least 5 %, and in comparison with 2006 by 11 %.

Table 4.5.1: Summary of the description of transport measures

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-14	REDUCTION OF EMISSIONS OF PASSENGER MOTOR VEHICLES	Reduction of specific emissions of personal vehicles	CO_2	Regulatory, information	Implemented	MOP, car salesmen, car manufacturers	-	-	no data	60	159	267	17. Informing consumers of fuel consumption and CO_2 emissions of motor vehicles and the agreement between the European Commission and car manufacturers 16. Control of exhaust gas composition and engine adjustment in motor vehicles
M-15	PROMOTION OF THE CONSUMPTION OF BIOFUELS	Increase of the share of biofuels in transport and reduction of emissions	CO_2	Regulatory, fiscal, economic	Implemented	MOP, MF, MKGP, motor fuel distributers	-	-	15	181	490	715	18. Promotion of biofuel consumption 29. Incentives for cultivating biodiesel crops
M-16	PROMOTION OF THE USE OF PUBLIC TRANSPORT	Increase of the share of public transport and reduction of the use of cars	CO_2	Economic, information, other	Implemented, adopted	MT, RRA RUL, ME, SŽ[22]	-	-	7	4	79	145	19. Encouraging the use of public transport and development of non-motorised forms of transport
M-17	SUSTAINABLE FREIGHT TRANSPORT	Increase of the share of railways in freight transport and reduction of fuel consumption	CO_2	Other	Implemented, adopted	MT	-	-	46	19	108	275	20. Increasing the share of railways in goods transport
M-18	GHG EMISSIONS FROM TRANSIT TRANSPORT	Redirection of transit freight transport to railways	CO_2	Fiscal, other	Adopted	MF, MT	-	-	-	-	-	-	

[22] RRA – RUL Regional Development Agency of the Ljubljana Urban Region, SZ – Slovenske železnice Ltd.

4.6 Industrial Processes

(M-19) F-GASES

Gas influenced by the measure: *F-gases*

The Directive 2006/40/EC of the European Parliament and of the Council relating to emissions from air-conditioning systems in motor vehicles and amending Council Directive 70/156/EEC (Official Journal L no. 161 of 14 June 2006) was transferred to the Slovenian legal order by the technical specification 161 (issue 01) on the air-conditioning systems in motor vehicles regulating the area of emissions from air-conditioning systems in vehicles of category M1 and N1 (personal vehicles and cargo vehicles to a total mass of 3.5 t). Since 21 June 2009, the specification prohibits the registration of vehicles with installed air-conditioning systems containing fluorinated greenhouse gases with a global heating potential over 150, except if the discharge level doesn't exceed 40 or 60 g/year. After 1 January 2017, the specification prohibits the registration of all vehicles with installed air-conditioning systems containing fluorinated greenhouse gases with a global heating potential over 150.

The implementation of provisions of Regulation (EC) no. 842/2006 of the European Parliament and of the Council relating to fluorinated greenhouse gases (Official Journal L no. 161 of 14 June 2006) and implementing regulations of the Commission that represent a measure for emissions of stationary sources of F-gas emissions is regulated in Slovenia by the Decree on the Implementation of the Regulation (EC) on Certain Fluorinated Greenhouse Gases (designation of a competent authority, supervision authority and offences), Decree on the Use of Products and Equipment Containing Ozone Depleting Substances or Fluorinated Greenhouse Gases and Rules on the professional training of personnel of equipment containing ozone depleting substances or fluorinated greenhouse gases. The regulations stipulate the conditions and mandatory procedures for the maintenance and installation of equipment, verification of leakage and capture from equipment, reprocessing and removal of equipment and manner of authorising and training of personnel and companies for the implementation of verification of leakage and capture of ozone depleting substances or fluorinated greenhouse gases. The Decree also stipulates a mandatory application of stationary equipment containing 3 kg or more of fluorinated greenhouse gases.

Besides the indicated measures for the reduction of emissions of fluorinated greenhouse gases in Slovenia, highly significant is also the implementation of the Decree amending the Decree on the Tax for the Pollution of Air with Emissions of Carbon Dioxide, the objective of which is to reduce the F-gas emissions by introducing the payment of environmental tax for the use of fluorinated greenhouse gases (manufacturing, installation and maintenance of equipment containing F-gases), and keeping records on the placing on the market of fluorinated greenhouse gases in the Republic of Slovenia; namely, keeping of records on the amount of fluorinated greenhouse gases, separated by types of fluorinated greenhouse gases and the intention of their use. The Decree promotes the decreasing of the leakage of fluorinated gases from equipment with different amounts of payment, if it is a case of first filling or manufacturing or a refilling. For the first filling or manufacturing only a 5 % tax is paid, while for refilling a 100 % tax is paid. The tax is paid per unit of pollution equal to 1 kg CO_2[23]. The full tax will be introduced gradually by 2013; namely, in 2009 10 %, 2010 20 %, 2011 40 % and 2012 80 %. The full tax shall amount to 12.5 EUR/t CO_2.

[23] The amount of gas has to be mutliplied by the greenhouse potential of the substance.

The management of waste cars and waste electrical and electronic equipment will also significantly influence the lower emissions of F-gases. Slovenia as a member state of the EU established the car collection and dismantling system in 2004, and electrical and electronic equipment in 2006.

4.7 Agriculture

(M-20) INCREASE OF THE EFFICIENCY OF DOMESTIC ANIMALS PRODUCTION

Gas influenced by the measure: *CH_4 and N_2O*

The improvement of the efficiency of animal production can significantly contribute to the reduction of the amounts of released methane and released nitrogen per unit of produced milk and meat. Since the methane and N_2O emissions represent a loss of energy and nitrogen, animal producers have a direct economic interest in the reduction of emissions. In the period 1986-2006, the GHG emissions per unit of produced milk reduced by 14 %. There are still many reserves in this area, which can be used only by educating producers towards the improvement of the efficiency of animal production. The instrument for the increase of the efficiency of animal production is also the upgrading and maintenance of the existing information system that will provide support to animal producers in decision-making that leads to the reduction of GHG emissions and inform them on the status of their farms. The implementation of professional tasks in cattle production within the framework of the Common Basic Breeding Programme can also contribute to the increase of efficiency.

(M-21) INCREASE IN THE RANGE OF GRAZING FOR CATTLE

Gas influenced by the measure: *CH_4*

By grazing, we can avoid methane emissions generated otherwise by the storage of animal fertilisers. Pasture breeding also contributes to the reduction of emissions due to the use of fossil gases at harvesting and transport of foodstuffs for animals in indoor animal production. The Ministry of Agriculture, Forestry and Food contributes to the increase of the range of grazing through the financing of the agricultural counselling service, financing of special education within the Rural Development Programme (RDP), promotion of the implementation of the measure for the Modernisation of agricultural holdings (within the framework of the RDP) that among other things stipulates investments in the setup of pastures for the controlled grazing of domestic animals, through the measure Improvement and development of infrastructure connected with agricultural development and adaptation that supports land consolidation and simpler implementation of grazing and of the measure Mountain grazing (within the framework of the RDP) that directly encourages grazing. It shall also be necessary to suitably solve the problem of spreading of larger carnivores to areas suitable for grazing; therefore, the measure Production of domestic animals in the central area of appearance of larger carnivores is implemented within the framework of the RDP.

Table 4.7.1: Summary of the description of industrial process measures

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-19	F-GASES	Reduction of F-gas emissions by preventing leakage, replacement and diligent management of equipment	F-gases	Regulatory, Educational, economic	Implemented	MOP	-	-	0,4	35	159	267	34. Regulations on F-gases

Table 4.7.2: Summary of the description of agriculture measures

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-20	INCREASE OF THE EFFICIENCY OF THE DOMESTIC ANIMALS PRODUCTION	Increase of the efficiency of cattle production with the purpose of reduction of GHG emissions per unit of produced milk and meat	CH_4, N_2O	Educational, information	Implemented, adopted	MKGP	-	-	70	13	47	64	
M-21	INCREASE IN THE RANGE OF GRAZING FOR CATTLE	Increase of the range of grazing for cattle and reduction of methane emissions at storage of animal fertilisers	CH_4	Economic, educational	Implemented	MKGP	-	-	n.p.	8	29	29	25. Rural Development Programme
M-22	RATIONAL FERTILISATION OF AGRICULTURAL LAND BY NITROGEN	Improvement of the efficiency of nitrogen cycle on farms and reduction of needs of nitrogen from mineral fertilisers	N_2O	Economic, educational	Implemented	MKGP	-	-	48	15	30	30	25. Rural Development Programme 26. Good agricultural practice in fertiliser application

(M-22) RATIONAL FERTILISATION OF AGRICULTURAL LAND BY NITROGEN

Gas influenced by the measure: N_2O

Within the framework of the Rural Development Programme, numerous measures are being implemented that contribute to the reduction of the use of mineral fertilisers. These are primarily the following measures: crop rotation, greening of arable land, integrated agriculture, integrated fruit cultivation, integrated viticulture, integrated vegetable cultivation and ecological farming that also directly limit fertilisation with nitrogen from mineral fertilisers besides fertilisation requirements on the basis of soil analysis and fertilisation plan. All other agricultural environmental measures also contribute to a reduction in the use of mineral fertilisers, since all payment recipients must additionally obtain education at least within the context of 4 hours/year, while fertilisation with mineral fertilisers is possible on the basis of a fertilisation plan considering also the results of a soil analysis. All farmers included in the agricultural environmental measures (in total, 21) must also consider the special restriction for the use of agricultural land for livestock. In 2006, already 204,000 hectares – which is more than 40 % of all agricultural land – were included in at least one agricultural environmental measure.

The Ministry of Agriculture, Forestry and Food has been encouraging a more efficient nitrogen cycle by the financing of a public counselling service. The public counselling service in the area of plant nutrition and agricultural environmental measures is directed primarily to the increase in the competitiveness of environmentally-friendly agriculture and the protection of water from pollution by nitrates. Only a small portion refers to the reduction of GHG emissions. In the past, the use of nitrogen from mineral fertilisers increased significantly due to efficient use (in the period 2000-2007 by 13 %); therefore, we expect that progress in this area will be slower.

4.8 Waste

(M-23) REDUCTION OF THE QUANTITY OF DEPOSITED BIODEGRADABLE WASTE AND CAPTURE OF LANDFILL GAS

Gas influenced by the measure: CH_4

In 2008, Slovenia adopted the Operational Programme on Elimination of Waste with the Objective to Reduce the Quantity of Biodegradable Disposal Waste for the Period 2009-2013 (OP-BIOO) that stipulates the following objectives: priority redirection of waste flows from depositing into recycling as a reprocessing procedure, acceleration and improvement of separate waste collection at source, decrease of the depositing of biodegradable waste from 63 % of the total deposited quantity of municipal waste in the base year 1995 to 22 % by the end of 2019: establishment of an efficient treatment of the remains of municipal waste, responsibility of waste producers and generators, depositing of municipal waste that complies with the requirements of the Decree on the Landfill of Waste, TOC 5 % of the total mass (or 18 % after mechanical biological treatment) and with a combustion value of 6,000 kJ/kg. With regard to organic kitchen waste that represents a separate fraction of municipal waste, the objectives are the following in accordance with the OP BIOO: separation of all organic waste and their biological treatment, establishment of separate collection of organic kitchen waste from catering and households in contiguous settlement areas of more than 2,000 inhabitants and population density of more than 20 inhabitants per 1 hectare (until 31 December 2009), provision of composting of organic kitchen waste from households in small municipal composting facilities, at least in contiguous settlement areas of more than

500 inhabitants and population density of more than 10 inhabitants per 1 hectare (until 31 December 2010).

These objectives will be achieved with the following measures:

1. Systematic closing of existing landfills (according to the OP-BIOO, 47 municipal landfills will close down by July 2009, replaced by regional centres. Since all centres are not operating yet, the closing date extended for 20 landfills until the construction of the centres.)
2. Regional concept of landfills (15[24] regional centres will be built for waste management, within the framework of which all waste processing, separating and depositing procedures will be carried out. 8 centres are currently in operation and construction, and 5 are still being planned.)
3. Waste incineration (In the long-term, the Republic of Slovenia will not be able to fulfil the set environmental objectives regarding waste management without waste incineration. The incorporation of waste incinerators would make sense in regions of more than 200.000 inhabitants. Namely, in bigger towns due to the high needs of heat energy; therefore, it would be reasonable to think about a supraregional concept of waste incinerators. Only one waste incinerator is currently operating.)
4. Order on the management of separately collected fractions in the public service of urban waste management (The order stipulates mandatory separate collection of fractions of municipal waste through the network of collection centres, mobile collection centres of hazardous fractions, collection centres and sorting centres. Since the implementation of provisions of the order is not satisfactory, amendments will be prepared that will more specifically determine the operating method of the public service for municipal waste collection and transport, and stricter conditions for the disposal of the remaining municipal waste. The order will also be upgraded to the level of decree – due to the addition of penal provisions referring to the serving standard – and level of rules.)
5. Environmental tax for waste disposal (The environmental tax shall be calculated with regard to the quantity and type of deposited waste and emissions of landfill gases; however, the second part is approximately three times higher than the first one. The second part may be decreased if the operator ensures capture or incineration of landfill gases or their energy use, whereby electrical energy production is an additional item for the decrease of the tax. The environmental tax may be only used if the investment programmes for the construction of facilities and plants reducing the quantity of deposited waste, and for the landfill infrastructure, including the capture and use of landfill gas, which is a reverse effect of the environmental tax on GHG emissions, are prepared and certified.
6. Prices of the municipal waste management service (The Ministry of the Environment and Spatial Planning will prepare instructions for the determination of criteria for the pricing of environmental protection public services, the objective of which is to standardize the payments in the Republic of Slovenia, and facilitate the households to pay for the services of the public service by the quantity of actual mixed municipal waste.)

[24] This number was indicated in the OP-BIOO; however, in the recent period there is information that the number might decrease due to higher economy of operations.

4.9 Forestry

(M-24) SUSTAINABLE FOREST MANAGEMENT AND CO_2 EMISSION SINKS

Sectors influenced by the implementation of the measure: *sinks/forestry*
Gas influenced by the measure: *CO_2*
The accumulation of the wood supply in the previous period is a result of long-term planned work of the Slovenian Forest Service based on the principles of sustainability, environmental friendliness and multi-purposeness. In 2007, the Resolution on the National Forest Programme (ReNFP) was adopted, where one of the fundamental objectives was sustainable forest development as an ecosystem within the meaning of its biodiversity and all its ecological, economic and social functions. ReNFP is the successor of the National Forest Development Programme (NFDP) of 1996. The Slovenian Forest Service also plays an important role in the management and restriction of felling of trees in forests; namely, it prepares forest management plans, and issues decisions on felling and authorisations for other interventions in forests. The Slovenian Forest Service directs the management of all forests in Slovenia – notwithstanding the ownership. The largest possible felling in Slovenia is stipulated by forest management plans for forest management areas with a validity of 10 years (the latter are valid for the period 2001–2010). According to these plans, the largest possible felling is 4.050.000 m3/year; however, this is also increasing. The accumulation of carbon in forests due to a planned increase in wood supplies is in Slovenia a key category in the implementation of CO_2 sinks within the framework of the Kyoto Protocol. Therefore, Slovenia will implement Tier 3 in order to indicate the increase in wood supply. For this purpose, the national inventory check of the condition of forests was carried out in 2007, which must be repeated in 2012.

The current data indicates that forests actually accumulate 3 to 4 times more CO_2 than Slovenia can use for the fulfilment of the Kyoto Protocol commitments under decision 11/CP.7 (1.32 Mt CO_2).

Table 4.9.1: Summary of the description of waste measures

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-23	REDUCTION OF THE QUANTITY OF DEPOSITED BIODEGRADABLE WASTE AND CAPTURE OF LANDFILL GAS	Arrangement of a waste collection and management system that provides minimum influences on soil and air	CH_4	Regulatory, economic, information	Implemen-ted, adopted	MOP, muni-cipalities	-	-	37	207	285	336	30. Waste Disposal Tax 31. Separate waste collection and packaging waste management 32. Landfill gas extraction and combustion, energy exploitation or use 33. Waste incineration

Table 4.9.2: Summary of the description of forestry measures

	Measure or policy	Objective	Gas influenced by the measure	Type of measure	Status	Implementer	Effect of the measure [Gg CO_2 eq] – ex-post (with regard to 2000)			Effect of the measure [Gg CO_2 eq] – ex-ante (with regard to 2005)			Connection to the measure from the previous national report
							1995	2000	2005	2010	2015	2020	
M-24	SUSTAINABLE FOREST MANAGEMENT AND CO_2 EMISSION SINKS	Provision of the permanent accumulation of wood supply	CO_2	Regulatory	Imple-mented	MKGP, Slovenian Forest Service	-	-	5,430[25]	5,500[26]	2,730	2,730	28. Sustainable forest management

[25] Estimated CO_2 sinks for 2005.

[26] Projection of CO_2 sinks.

4. 10 How measures and policies influence the long-term trends of GHG emissions

The majority of measures presented in this chapter are designed for the long-term, which means that their results and implementation don't conclude by 2012. On the contrary, the implementation of measures will strengthen. This is especially important, since Slovenia as an EU member adopted objectives for 2020. The total effect of measures in 2015 and 2020 is indicated in the following chapter.

4.11 Measures and policies no longer implemented

All measures and policies that were presented in the previous national communication are still being implemented; however, some measures have been redesigned and changed due to unsatisfactory results, which is noticeable in the description of individual measures.

4.12 Participation in mechanisms referred to in Articles 6, 12 and 17 of the Kyoto Protocol

On the basis of the newest emission projections in the Operational Programme for Limiting Greenhouse Gas Emissions of 2009, it was determined that Slovenia will not be able to achieve the Kyoto commitment in the period 2008-2012 with the implementation of domestic measures. The shortage was estimated at 1,1 Tg CO_2 eq/year[27]. The state may obtain emission coupons and Kyoto units in the following ways:

- by publishing a public call to invite natural and legal persons to submit an application to sell ERU or CER units by implementing a project of a joint investment and following an appropriate procedure stipulated by the act proposal concluding an agreement on the sale of units with the operator of the joint investment;
- by purchasing allocated amounts units (AAU) from a signatory state of the Kyoto Protocol selling these units;
- by purchasing ERU, CER or emission coupons (EUA) on the market.

The provisions of the Environmental Protection Act stipulate the Ministry of the Environment and Spatial Planning as the competent authority in accordance with the requirements of the Kyoto Protocol, and specify the procedure by which the operator of a project activity obtains a decision of the Ministry, if the latter estimates the appropriateness of the joint investment on the basis of the application.

The provisions of the Environmental Protection Act also regulate the principle of additionality that is of fundamental importance for the realisation of a joint investment with regard to the reduction of GHG emissions. The indicated principle is observed if the implementation of the project activity resulted in an additional reduction of GHG emissions, which would not occur if the indicated project activity wasn't implemented. Additionality or an additional reduction in GHG emissions is confirmed by an independent verifier. The indicated provision also fulfils the statutory obligation that the reduction of GHG emissions with the implementation of flexible mechanisms additionally contributes to the reduction of GHG emissions that are the result of measures implemented in accordance with the requirements of the national legal order.
Furthermore, the Environmental Protection Act also stipulates that the Government of the RS and the host country of the joint investment may conclude an agreement on the intention for cooperation in the obligation of reducing GHG emissions referred to in the Kyoto Protocol.

[27] In the OP-TGP1, a lower number is appearing; namely 1,070 Gg CO2 eq. The difference is a result of the correction of emission projections for N2O.

Since practical experience from other countries indicates that governments in principle conclude such agreements and that keeping up to date is necessary in such conclusions, the act proposal stipulates that such an agreement may be concluded in the name of the Government of the RS by the Minister responsible for environmental protection, in order to avoid long-lasting procedures of concluding international agreements in accordance with the Act regulating foreign affairs. The agreement contains primarily the determination of the type of project activities, indication of authorities responsible for the authorisation of joint investments, and definition of method of cooperation between states, as well as the expected scope and method of transfer of units for the reduction of emissions or certified reduction of emissions.

With the purpose of decreasing the total costs of the reduction of GHG emissions, the signatory state of the Kyoto Protocol may, besides international trading with emission coupons, also purchase on its own behalf the cash or units required for the reduction of GHG emissions under the implementation of project activities in any other signatory state of the Kyoto Protocol, by which it also fulfils part of its commitments from the Kyoto Protocol, if it is established that the implementation of specific measures for the reduction of GHG emissions in the Republic of Slovenia is more expensive than the purchase of the indicated units in other states. For this purpose, the act proposal includes the management of emission coupons and Kyoto units. In accordance with the provisions of the act proposal, the Government of the RS on the proposal of the Ministry shall adopt a programme of joint investments, by which it shall define the necessary quantity of emission coupons and Kyoto units that the state needs for the fulfilment of the commitments of the Kyoto Protocol in this period, the method of their obtainment and incentives for the implementation of joint investments.

By the end of 2009, on the basis of the OP-TGP1 the Ministry of the Environment and Spatial Planning must submit for adoption to the Government of the RS the management programme for Kyoto units and emission coupons and prepare a proposal of an institutional framework for the implementation of management of Kyoto units and emission coupons.
The needed funds for the purchase of Kyoto units and emission coupons from the projects of joint investments shall be provided by the Government of the RS with the introduction of the environmental tax for the pollution of air with CO_2 emissions for motor fuels. More than 80 million EUR will be necessary for the price of coupons at 15 EUR/t CO_2.

4.13 Are the mechanisms referred to in Articles 6, 12 and 17 of the Kyoto Protocol a supplement to domestic measures

Slovenia adopted the first programme document from the area of reducing GHG emissions in 2000 in the form of a strategy and short-term action plan. The strategy stipulated the objectives and basic starting points for the reduction of emissions, while more than 120 measures were indicated. The short-term action plan represented a bridging of the operational gap until the adoption of a comprehensive programme; it contained 30 measures that the Government of the RS would start to implement in 2001. Many measures had already been implemented prior to the adoption of these two documents; for instance, the CO_2 tax was already introduced in 1996, the Environmental Fund of the RS has granted loans for environmental investments since 1996, subsidies for the implementation of measures of efficient energy consumption in households have been granted since 1996, while energy counselling within the framework of the ENSVET network has been conducted since 1991. The Operational Programme for Limiting Greenhouse Gas Emissions was adopted in 2003.

The results of domestic measures until 2005 were assessed on the basis of an analysis of the implementation of the action plan measures that was prepared for the first time in 2008 and included all measures. The results were assessed through the monitoring of key indicators for individual measures; for instance, a change of passenger kilometres in the passenger transport, whereby only changes in a positive direction were considered (in the direction of reducing emissions). In the results of subsidies and favourable loans, only direct results were considered. The base year for the assessment of results was 2000. The results of measures for the Kyoto period were assessed on the basis of emission projections until 2020 with regard to 2005. In the table below, the results for 2008 were calculated as the sum of the results of 2005 and 2008 with regard to 2005. GHG emission allowance trading within the context of the EU was considered as a domestic measure.

Table 4.13.1: Reduction of emissions due to the implementation of domestic measures for the period 2001-2005 and projections for 2008-2012 as well as the planned implementation of Kyoto mechanisms

[Gg CO_2 eq]	2001	2002	2003	2004	2005	2008	2010	2012
Ex-post	44	548	709	1144	1447			
Ex-ante						4588	6200	7387
Implementation of Kyoto mechanisms						1095	1095	1095

4.14 Measures and policies under Article 2 of the Kyoto Protocol

4.14.1 Promotion of sustainable development

Slovenia's Development Strategy (SDS) adopted by the Government of the RS in 2005 presents an umbrella national development strategy derived from the principles of sustainable development and integration of development policies. Sectoral and regional development strategies, national programmes and other development programmes must substantively comply with the general strategic policies of this document. SDS defines four strategic development objectives of Slovenia, including the objective of sustainable development. Furthermore, the document defines five development priorities. The fifth development priority is the integration of measures for the achievement of sustainable development; it contains the following sets: sustainable renewal of population, coherent regional development, provision of optimum health conditions, improvement of spatial planning management, integration of environmental protection criteria into sectoral policies and consumer samples, development of national identity and culture. In some sets, sustainable development appears only in an individual measure (for instance, more coherent regional development contains a measure of improvement of transport integration of remote areas with the main transport axes, including the strengthening and promotion of public transport and sustainable forms of mobility; the improvement of spatial planning management contains a measure of continuation of increasing of land for organic farming), while the set integration of environmental protection criteria into sectoral policies and consumer samples is completely devoted to measures for sustainable development and also contains measures presented in this chapter and influences the reduction of GHG emissions (for instance, implementation of the sustainable use of natural resources, reduction of energy and material intensity and promotion of waste re-use, increase in energy efficiency and use of renewable energy sources in public sector, especially on a local level, the continuity of environmental tax reform and implementation of green public procurements, etc.).

In accordance with Slovenia's Development Strategy, the sectoral programmes are also sustainably directed; for instance, the Resolution on the National Energy Programme, the Resolution on Traffic Policy, the Resolution on the National Programme of Environmental Protection.

As a member of the EU, Slovenia has been actively participating in the preparation and implementation of the Lisbon strategy that is an essential element of the parent objectives of sustainable development, improvement of welfare and living conditions in a sustainable manner for current and future generations. Furthermore, the EU also adopted a strategy of sustainable development; however, both strategies contribute to the attainment of the same objective. The strategies are mutually complementary and aim at supplementary measures; however, they both use different instruments and achieve results in different time frames.

4.14.2 Reduction of GHG emissions in aviation and shipping

Slovenia as a member state of the EU will achieve the reduction of international emissions in aviation through the inclusion of aircraft operators in the GHG emission allowance trading scheme. The measure will enter into force on 1 January 2012 for all flights. Within the framework of the scheme, aircraft operators will receive for 2012 coupons for the amount of 97 % of emissions in the period 2004-2006, and 95 % for the period 2013-2020.

4.14.3 Minimising harmful effects

Slovenia is aware that climate change as well as efforts for the reduction of GHG emissions will have a negative effect on all countries, while especially sensitive are some developing countries.

The Kyoto Protocol considers all these factors; namely, its objective is to reduce emissions, the consequence of which is a direct reduction of the harmful influences of climate change. Furthermore, activities for the reduction of emissions aren't restricted to one gas or sector; namely, the objectives and activities are restricted to six gases and various sectors, which is why the burden can transfer between them. The Kyoto Protocol additionally introduces flexible mechanisms that also additionally allocate the burden outside individual countries; the Protocol also promotes technology and knowledge transfer.

Slovenia executes additional activities from this area as an EU member. In 2004, the EU adopted an action plan from the area of climate change and development, the objective of which is to provide aid to developing countries for the achievement of economic progress.

4.15 State programmes and/or legislative or administrative measures

Chapter 4.1 presents the Operational Programme for Limiting Greenhouse Gas Emissions and a monitoring system for the implementation of the operational programme, by which Slovenia will attain the Kyoto commitment. The Environmental Protection Act will play an important legislative role for the achievement of the Kyoto commitment. The Environmental Protection Act presents a legal basis for all remaining legislation from the area of environmental protection that indirectly or directly influences GHG emissions; for instance, in the areas of waste, environmental certificates, the comprehensive assessment of environmental influences, ecolabels, the environmental management of organisations, economic and financial environmental instruments (for instance, environmental tax for environment pollution, GHG emission allowance trading), etc.

The Environment inspection service is responsible for the supervision of the implementation of the Environmental Protection Act and all relevant implementing regulations; the jurisdictions of the environment inspection service also include the prohibition of operating of plants or equipment, withdrawal of environmental certificates, etc. In case of infringement, the act also stipulates the payment of fines.

Important legislative framework for the implementation of the measures for the reduction of GHG emissions are also the Construction Act, the Energy Act and the Agriculture Act.

4.15.1 Procedures for public participation

The Environmental Protection Act provides access to environmental data and programmes to all interested persons, while the ministry must prepare a report on the environmental status every four years; furthermore, it also provides for the participation of the public in the preparation of all environmental protection programmes.

Environmental data is available on the web pages of the Environmental Agency of the Republic of Slovenia; the programmes and legislation are available on the web pages of the competent ministries.

4.15.2 Participation in Kyoto flexible mechanisms

The Ministry of the Environment and Spatial Planning shall be the national unit for mechanisms of joint investments (JI and CDM).
For additional information refer to Chapter 4.12.

4.15.3 Description of the national register

The Environmental Agency of the Republic of Slovenia is stipulated as the operator of the emission coupon register that started to operate in November 2005 for the needs of the Kyoto Protocol and the EU Directive relating to the CO_2 emissions trading scheme, on the basis of the Environmental Protection Act, Rules on general terms and conditions for the operation of the emission coupon register, and Regulation on detailed criteria to establish and operate the emission coupon register.

The register was developed for the needs of the EU-ETS, while the transition to ITL was carried out in October 2008. A check was carried out in October 2007 by the ITL trustees.The register is available on the web site http://rte.arso.gov.si/.Detailed information on the register can be found in Chapter 8 of Slovenia's initial report under the Kyoto Protocol, transmitted to the secretariat in July 2007.

4.15.4 Procedures in connection with the implementation of Articles 3.3 and 3.4 of the Kyoto Protocol preserving biodiversity

The National Forest Programme (NFP), adopted in December 2007, is the fundamental strategic document in the sector of forests and forestry, and at the same time a modernisation and upgrade of the National Forest Development Programme (OG RS, no. 14/96), adopted by the national assembly on the basis of Articles 6 and 7 of the Forest Act. The tag line of the NFP – Forest for the future – shows the efforts, on the basis of which forests will permanently provide the preservation of the health of Slovenia's inhabitants and enable economic development and workplaces in line with the sustainable management and consumption of wood and the preservation of the environment and biodiversity.

The National Forest Programme also presents the implementation of the Environmental Action Plan at the national level, defining four priority tasks: climate change, nature and biodiversity, the environment and health as well as living quality, natural sources and waste.
The annual felling is stipulated by forest management plans, which are prepared for a period of 10 years on the basis of the National Forest Programme.

5 EMISSION PROJECTIONS AND TOTAL IMPACT OF MEASURES AND POLICIES

The emission projections are an important element of the policy for reducing GHG emissions, since they enable a comprehensive review of the implementation of various measures for the reduction of emissions, and an assessment of the adequacy of these measures. The following are the results of projections prepared for amendments and the supplementation of the Operational Programme for Limiting Greenhouse Gas Emissions (OP TGP1). Projections were prepared for 2008, 2010, 2012, 2015 and 2020.

5.1 Definition of scenarios

Projections were prepared for two scenarios, with existing measures and with additional measures. The scenario with existing measures includes all measures indicated in the chapter measures and policies (measures implemented or adopted by 2008), while the scenario with additional measures stipulates a higher intensity of the implementation of measures in other sectors and industry in the additional scope of financial funds for the amount of 100 million EUR. Since only the higher efficiency of electricity use in industry will be promoted, only the higher intensity of the implementation of measures in other sectors has an influence on the projections (additional funds for URE measures in buildings and additional funds for the granting of favourable loans for URE and RES measures).

5.2 Results of projections

5.2.1 Carbon dioxide

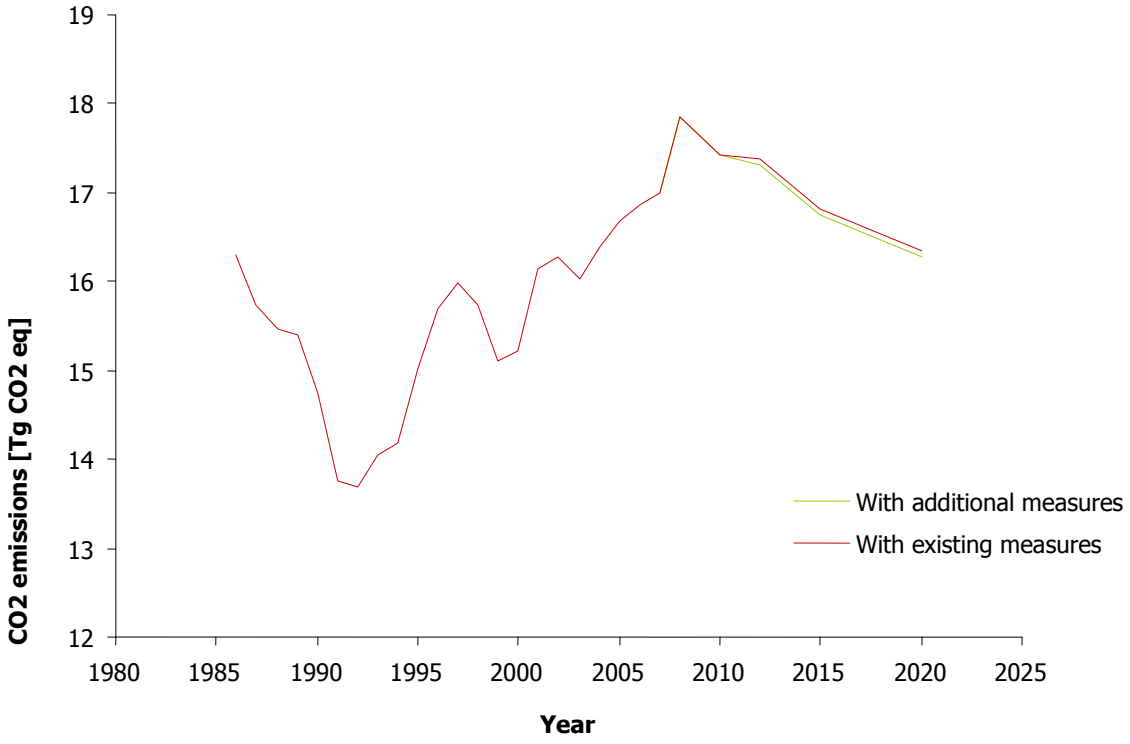
In 2008, CO_2 emissions will significantly increase in comparison with the previous year due to the high growth in the consumption of liquid fuels in transport and other sectors. On the other hand, emissions in industry and heat and power generation will decrease due to the lower quantity of allocated emission coupons. In 2009, a decrease will appear, which is primarily a result of lower transport emissions due to the world economic crisis and consequently decreased transit transport through Slovenia. In 2007, 12 % of the total sold amount of diesel fuel in Slovenia was sold to transit transport. A slight reduction of emissions is noticeable until 2012, followed by a fast reduction as a result of the decrease in the quantity of coupons in the EU-ETS system, since by 2020 the EU plans a reduction of GHG emissions by 20 % in case of no international agreement, or by 30 % in case of an international agreement. The projections consider the first reduction, for the achievement of which the quotas in the EU-ETS systems will decrease by 21 % with regard to 2010[28]. In case that the EU will reduce emissions by 30 % on the basis of an international agreement, the objective for the EU-ETS participants will be more ambitious. Besides the EU-ETS, an important influence for the reduction of emissions is also the implementation of measures in buildings in other sectors. On the other hand, the increase of the scope of transport will influence the increase of transport emissions after 2012 despite the implementation of measures.

In comparison with the projection with existing measures of 2012, the projection with additional measures is lower by 69 Gg CO_2 eq. This difference between projections until

[28] The final version of the EU Directive indicates 2005 instead of 2010.

2020 is constant, since the additional scope of funds is stipulated only until 2012, until which time the OP-TGP1 is valid.
In 2010, the emissions will be 2.6 % higher in comparison with 2007 according to the projection with existing measures, and 2.5 % according to the projection with additional measures. In 2020, emissions will be lower than in 2007; namely, by 3.9 % or 4.3 % respectively.

Figure 5.2.1: The development of CO_2 emissions without sinks until 2007 and development according to the projection with existing measures and with additional measures until 2020.



5.2.2 Methane

Methane emissions will be reduced in the entire observed period (Figure 5.2.2). A significant reduction in 2008 is a result of the reduction of emissions in agriculture due to lower emissions from manure management, and in the sector of waste due to the lower amount of deposited biodegradable waste. In comparison with 2007, the emissions in 2010 will be lower by 2.5 %, and in 2020 by 7.1 %. Methane represents 10 % of total GHG emissions in 2010 and 2020.

5.2.3 Dinitrous oxide

After an increase in 2008, N_2O emissions will be reduced in 2009, followed by an increase until the end of the year. In 2010, emissions will be higher by 3.0 % than in 2007, and in 2020 by 5.1 %. The increase in 2008 is a consequence of the higher consumption of liquid fuels in transport and other sectors, while the increase after 2010 is a consequence of the increase of the use of fuels in transport.

Figure 5.2.2: The development of CH_4 emissions until 2007 and development according to the projection with existing measures and with additional measures until 2020.

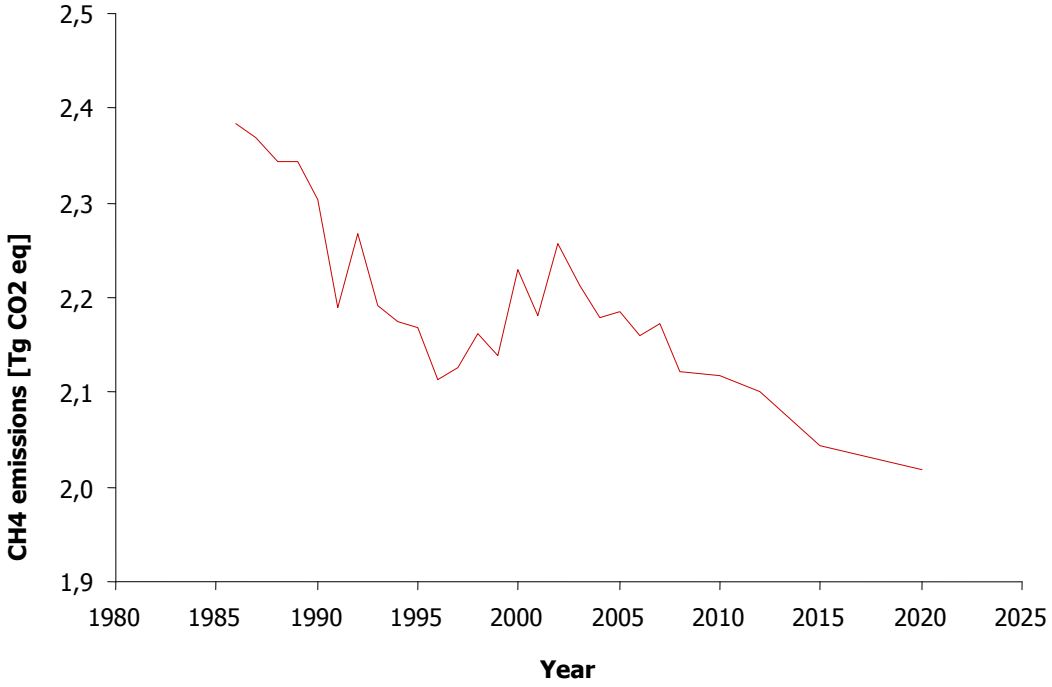
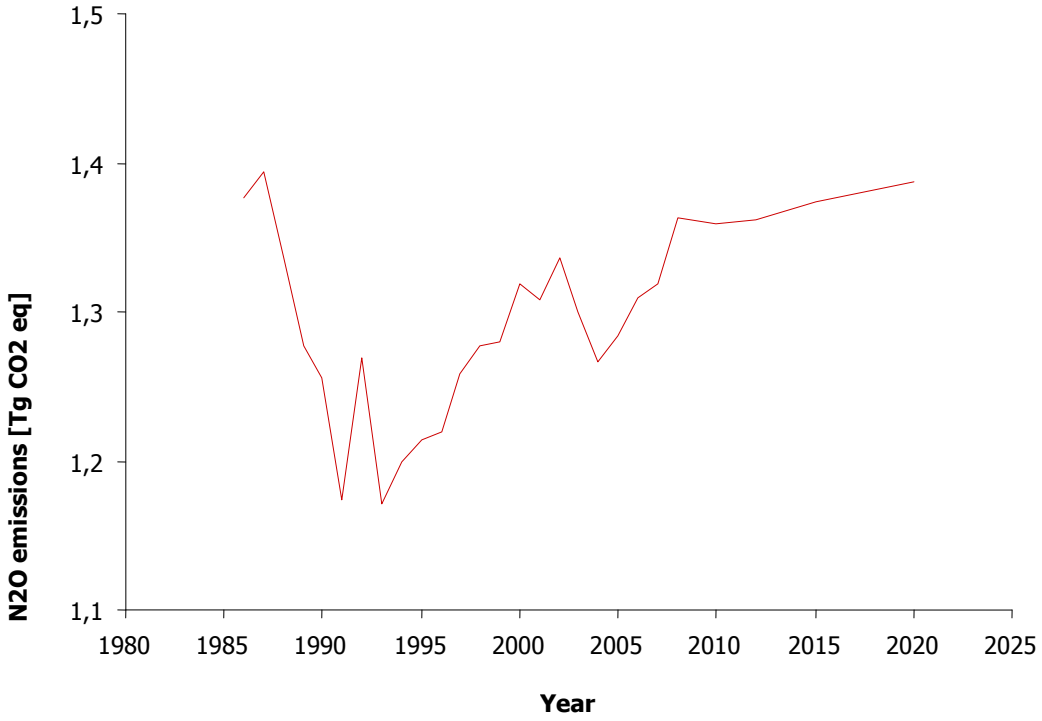


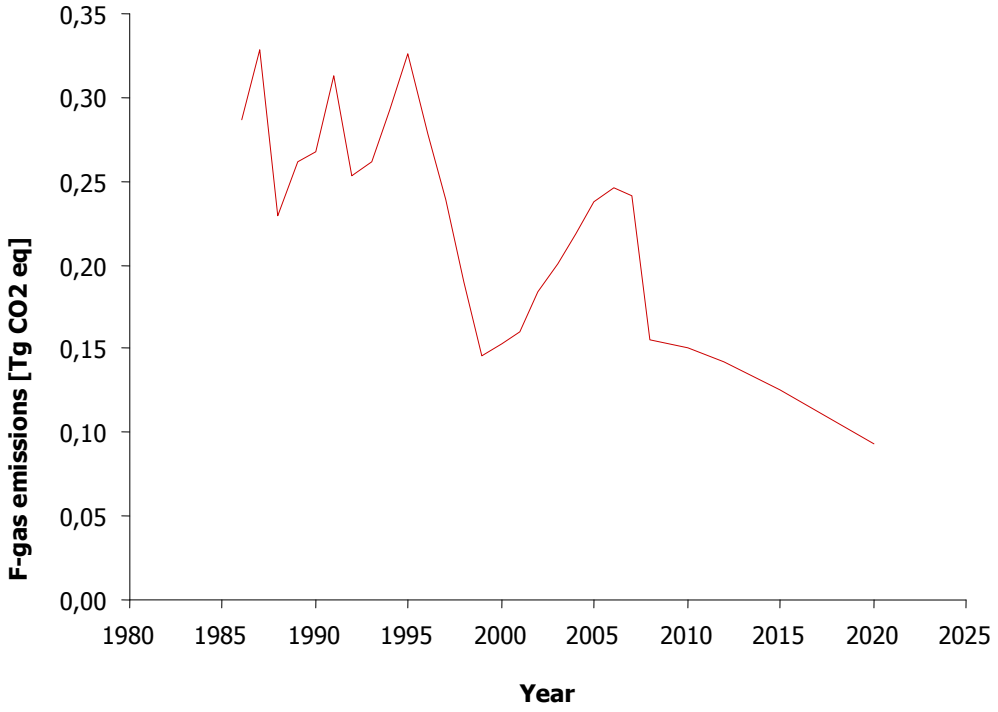
Figure 5.2.3: The development of N_2O emissions until 2007 and development according to the projection with existing measures and with additional measures until 2020.



5.2.4 F-gases

F-gases emissions will be significantly reduced in 2008, followed by a further gradual reduction after this year. The reduction in 2008 is a result of the closure of electrolysis B in the Talum company, which is a consequence of the IPPC Directive. The reduction after this year is a result of the implementation of measures described in the previous chapter. In comparison with 2007, the emissions in 2010 will be lower by 37 %, and in 2020 by 61 %.

Figure 5.2.4: The development of F-gases emissions until 2007 and development according to the projection with existing measures and with additional measures until 2020.



5.2.5 Emissions by sectors

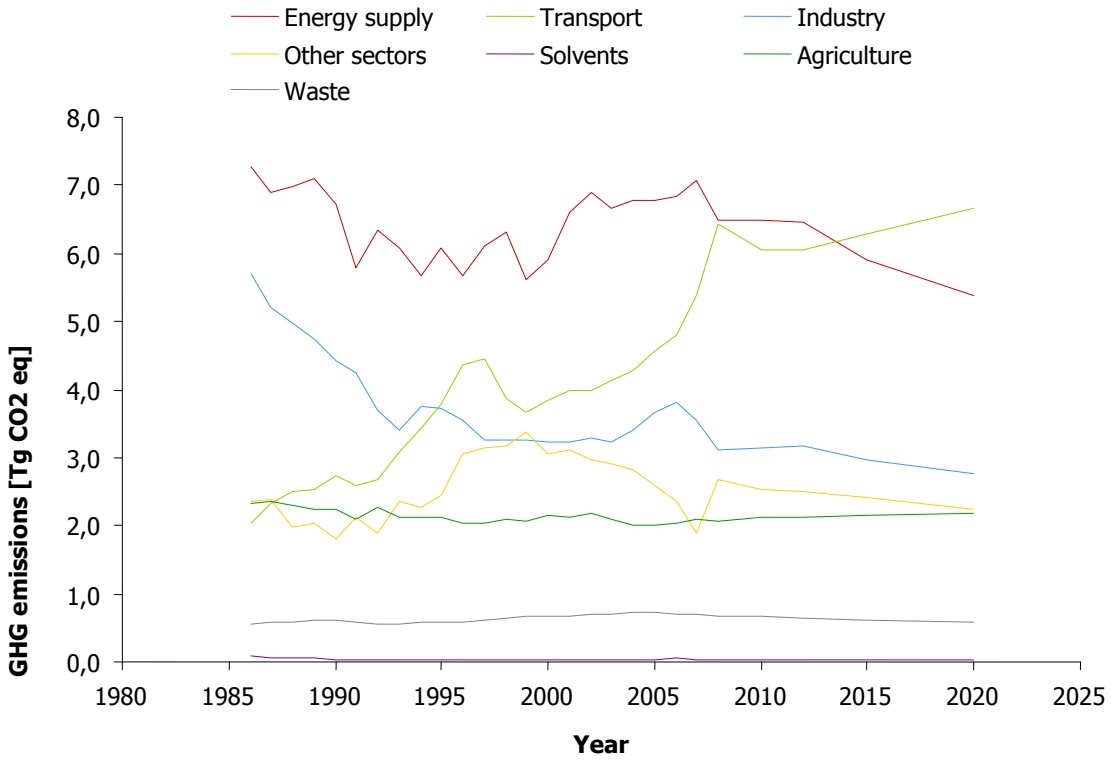
The main sectoral sources of emissions are energy supply[29] and transport. In 2008, the emissions of these two sectors were almost equal due to the decrease in power and heat generation that is a result of lower quotes within the framework of the EU-ETS system and an increase in transport emissions that is a result of the higher growth of sales of diesel fuel, primarily due to transit transport. After this year, the emissions of energy supply will remain almost unchanged, since the quotas are determined for the period 2008-2012, while the emissions will be reduced in transport due to the economic crisis and the commencement of the implementation of measures in this area (construction of railway infrastructure, public passenger transport). After 2012, emissions of energy supply will be significantly reduced, which is a result of the decrease of quotas within the EU-ETS system; transport emissions will increase. The increase is largely a result of the increase of transit transport that is primarily increasing due to the extension of the EU in the countries of the Western Balkans. After a slight increase in the period 2008-2012 that is a result of the increase of emissions in that part of industry not included in the EU-ETS system, industry emissions will significantly reduce after 2012. Emissions in other sectorswill be reduced as well, whereby this trend is noticeable after 2009. The reduction is a result of the implementation of measures in buildings and the increase of the RES share in heat generation. A significant increase in

[29] IPCC sectors Energy supply and Fugitive emissions.

emissions in 2008 is a consequence of a too low consumption of liquid fuels and too low emissions in 2007. This is a consequence of the deferred purchase of liquid fuels due to the increasing prices at the end of 2007, and a warmer winter on the other hand. In agriculture, emissions will slightly increase due to the increasing number of animals; in the waste sector, emissions will be reduced due to a reduction in the amount of deposited biodegradable waste.

In 2010 in comparison with 2007, the emissions were lower in energy supply (8 %), industry (11 %) and waste (1 %), and higher in transport (12 %), other sectors (34 % in the scenario with existing measures, and 33 % in the scenario with additional measures) and agriculture (2 %). In 2020, the situation is similar, emissions in energy supply were lower by 24 %, industry by 22 % and waste by 16 %, and higher in transport by 24 %, other sectorsby 18 % (14 % in scenarios with additional measures) and agriculture by 4 %.

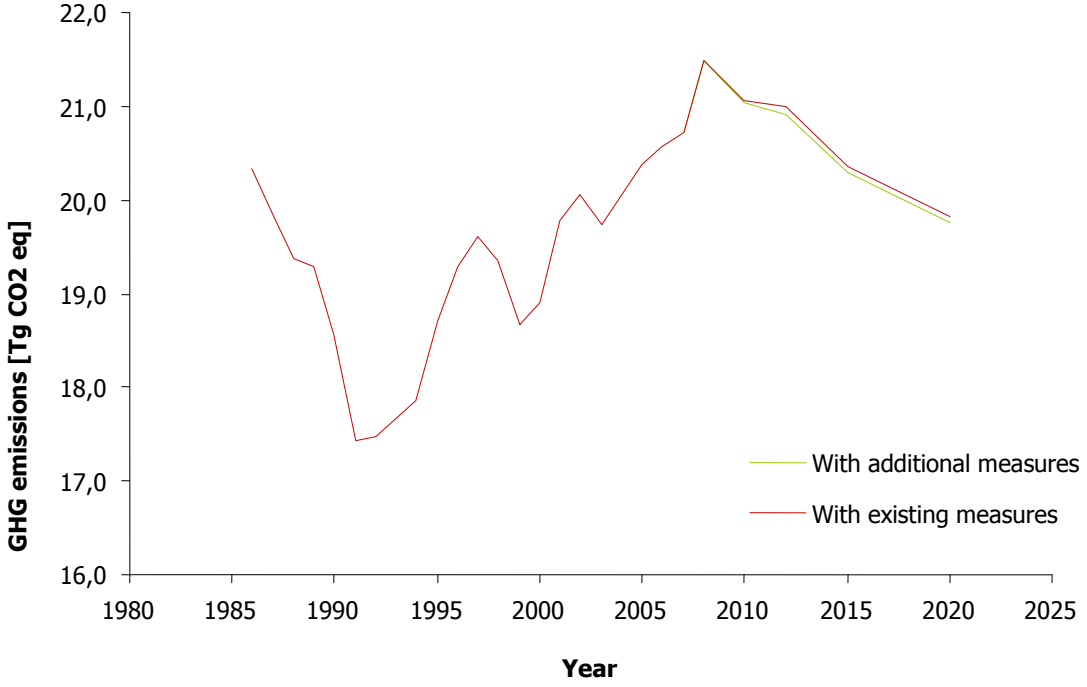
Figure 5.2.5: The development of GHG emissions by sectors until 2007 and development according to the projection with existing measures until 2020



5.2.6 Total GHG emissions

Total emissions will increase only in 2008, followed by a reduction period. In 2010 according to the projection with existing measures, they will amount to 21.06 Tg CO_2 eq, and according to the projection with additional measures to 21.04 Tg CO_2 eq. In comparison with 2007, emissions were higher by 1.6 % or 1.5 % respectively. By 2020, the emissions will reduce to 19.83 or 19.76 Tg CO_2 eq respectively, which is less than emissions in 2007; namely, by 4.3 or 4.6 % respectively.

Figure 5.2.6: The development of GHG emissions until 2007 and development according to the projection with existing measures and with additional measures until 2020.



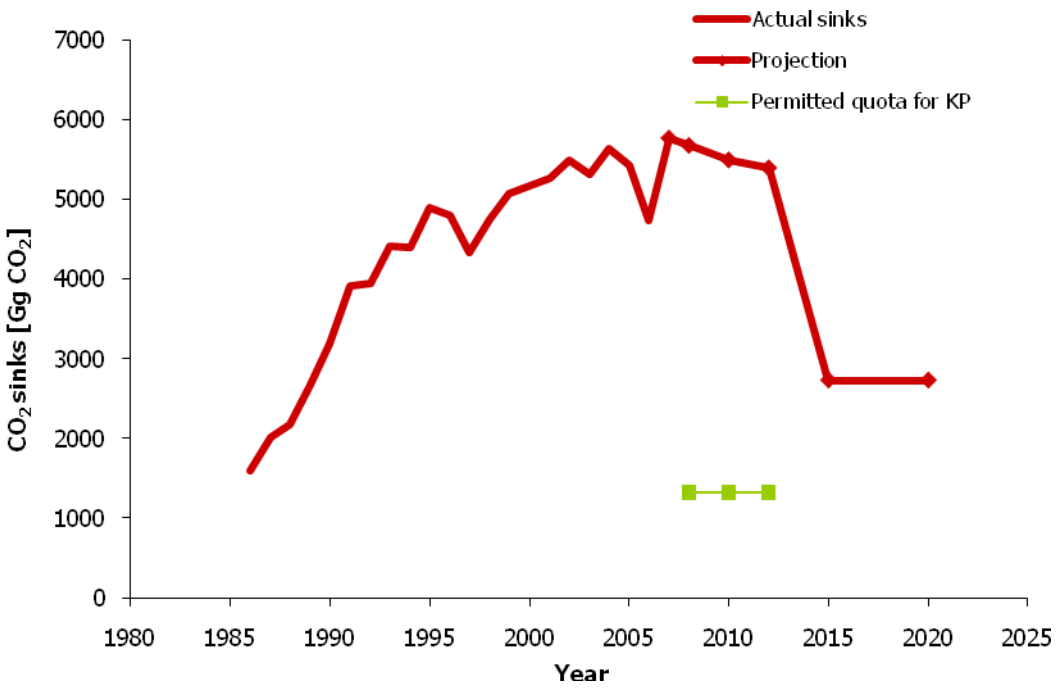
5.2.7 International bunkers

Fuels for shipping and aircraft transport are not included in the projections. In 2007, the emissions of fuels from international bunkers represented 1.3 % of emissions in the Republic of Slovenia. In the future, emissions will surely increase as a result of the increase of aircraft transport; the same applies to shipping transport, where the main role is played by the cargo port Luka Koper.

5.2.8 Projections of CO_2 sinks

CO_2 sinks will decrease by 2020; however, in 2020 they will still significantly exceed the permitted quota that Slovenia may use for the attainment of the Kyoto Protocol objective. Sinks were estimated for 2010 at 5.5 Tg CO_2, and for 2020 at 2.7 Tg CO_2. The reduction of sinks is a result of the increase in the felling of trees, as foreseen in the National Forest Programme, adopted in Slovenian Parliament in 2007.

Figure 5.2.7: The development of the existing CO_2 sinks and projections until 2020 in comparison with the permitted quota of sinks in the attainment of the Kyoto commitment



5.2.9 Attainment of the Kyoto commitment

Base emissions for Slovenia amount to 20,354 Gg CO_2 eq. The Kyoto commitment presents an 8 % reduction of emissions in the period 2008-2012 with regard to base emissions. This means that in the first commitment period of the Kyoto Protocol Slovenian average annual emissions are not allowed to surpass 18,726 Gg CO_2 eq. For the achievement of the Kyoto commitment, Slovenia may, in accordance with the decision 11/CP.7 of the Conference of Parties to the United Nations Framework Convention on Climate Change, use CO_2 sinks in the amount of 1.32 Tg due to the increase of wood biomass in forests. It follows that Slovenia must, in order to fulfil its commitment in the period 2008-2012, reduce its average annual emissions to 20,046 kt CO_2 eq. According to the projections with existing measures, the average emissions in the period 2008-2012 will amount to 21,170 Gg CO_2 eq, which means a surplus of 1,124 Gg CO_2 eq. According to the projections with additional measures, emissions in the first commitment period shall be reduced to 21,141 Gg CO_2 eq, which represents a surplus of emissions of 1,095 Gg CO_2 eq.

The difference between the projection of emissions and the Kyoto commitment will be covered by the purchase of Kyoto units or emission coupons.

Figure 5.2.8: The development of emissions (in the period 2005-2007, allocated emission coupons are considered as sources in the EU-ETS) and the development of emissions according to the projection with existing measures and with additional measures in comparison with the Kyoto commitment

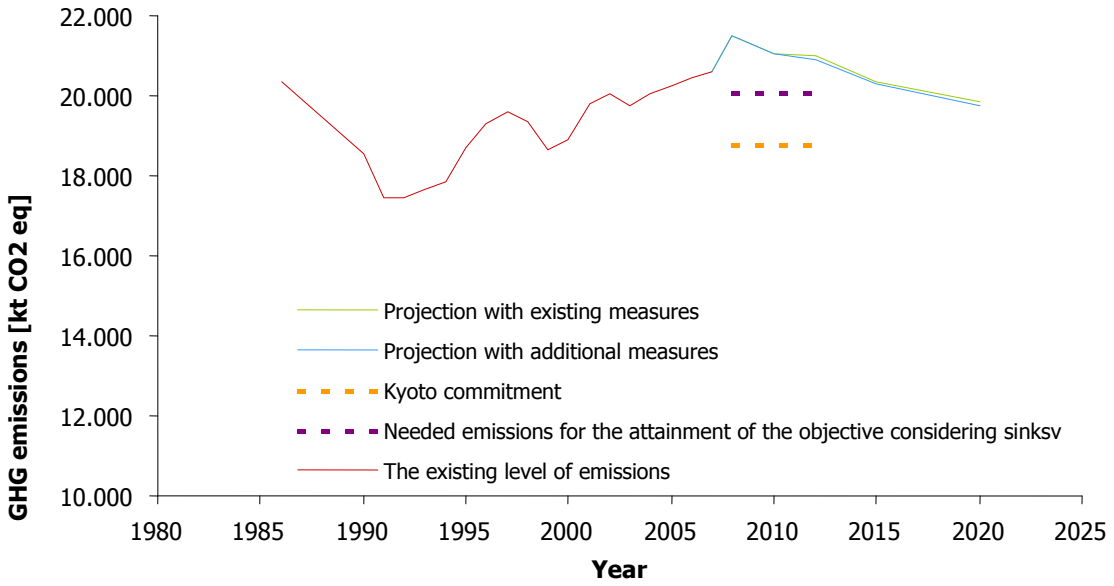


Table 5.2.1: Analysis of the attainment of the Kyoto commitment according to the projection with additional measures [30]

Gg $CO_{2\ eq}$	Emissions in base year	Projection with additional measures	Difference from the base	Difference from the objective
		2008–2012	[%]	
CO_2 without LULUCF	16,282	17,517	7.6%	
CH_4	2,376	2,114	-11.0%	
N_2O	1,370	1,361	-0.6%	
F–gases	326	149	-54.2%	
Total emissions without LULUCF	**20,354**	**21,141**	**3.9%**	
Energy supply	16,044	17,359	8.2%	
Industrial processes	1,328	968	-27.1%	
Solvent and other product use	82	42	-48.5%	
Agriculture	2,334	2,105	-9.8%	
Waste	566	667	17.8%	
Permitted use of sinks		1,320		
Total emissions with LULUCF		**19,821**	**-2.6%**	
Target emissions	**18,726**			**1,095**

5.3 Total impact of measures

The total impact of measures was determined as the sum of impacts of individual measures. The impact of individual measures was determined with the assistance of models used for projections. For the implemented and adopted measures the impact was calculated with

[30] The projection is by appr. 40 Gg CO_2 eq higher than in the OP-TGP1 and the EU report where the projection of N_2O energy emissions was corrected.

regard to the scenario without measures, and for the planned measures with regard to the scenario with measures.

The total impact for 2010 amounts to 3,217 Gg CO_2 eq, while the EU-ETS contributes the most to the reduction; namely, 44 %. By 2020, the impact of measures shall increase to 9,595 Gg CO_2 eq. The EU-ETS is also still the most important measure in 2020; however, its contribution shall reduce to 33 %.

Table 5.3.1: Total impact of measures by gases for the scenario with existing and additional measures

	ex-post (with regard to 2000)	ex-ante (with regard to 2005)		
Impact of implemented and adopted measures	2005	2010	2015	2020
CO_2	385	2,935	6,474	9,033
CH_4	86	229	364	438
N_2O	70	18	40	44
F-gases	0	35	74	80
TOTAL	**541**	**3,217**	**6,953**	**9,595**
Impact of additional measures	2005	2010	2015	2020
CO_2		20	69	69
CH_4		0	0	0
N_2O		0	0	0
F-gases		0	0	0
TOTAL		**20**	**69**	**69**

5.4 Comparison with projections in previous reports

Projections in this report are, in comparison with the projections in the previous report for 2010, higher by app. 6 %, which is a result of higher transport emission projections. In 2015, the projections are almost equal, while in 2020 the newest projections are lower than those in the IVth National Communication, which is primarily a result of the assumption of a further reduction of emissions of participants in the EU-ETS system.

Differences in assumptions between projections are noticeable in the comparison of parameters indicated in the annex to the report.

5.5 Uncertainty of projections

The uncertainty of projections is based on: the uncertainty of statistical data used as a basis for projections (statistical data, emission factors), models used for projections that present a simplified review of the actual events, uncertainty of scenarios of the implementation of policies and measures since the latter are changing with time and it is harder to predict their actual effect due to the influence of numerous factors, and uncertainty of future economic, technological and social development, including the uncertainty of energy prices, growth of energy supply and demand, behaviour of the main players in the energy market, etc.

The result of the emission projections in the sector of energy is largely dependent on the realisation of the considered measures in the area of RES and URE, which will be largely dependent on the available budget funds, where a gap between plans and realisation has been widening in recent years. The dynamics of the transition to natural gas in electrical energy

production are largely dependent on future market movements and social problems in reducing the production of coal. Fugitive emissions are also uncertain as a result of the uncertainty of the future coal industry. Uncertainties in this sector don't have an influence on the attainment of the Kyoto commitment of Slovenia, since this sector is included in the EU-ETS.

Source of uncertainties are also the scenarios of the future development of the gross domestic product that have a strong influence on energy consumption and consequently emissions in industry. The scenario used in projections was prepared before the recession, so that for the period 2008-2012 a 4.3 % average annual growth of GDP is stipulated.

Hereby it has to be emphasized that the current financial crisis will have an effect on the reduction of GHG emissions in the Republic of Slovenia; primarily in the industry and energy sectors. Since these two sectors are included in the EU-ETS, the reduction of emissions will not influence the fulfilment of commitments of the Republic of Slovenia, except if the operators of plants would annul the freely allocated coupons; however, this cannot be expected since they may also use them for the fulfilment of their own commitments in the period 2013-2020.

The largest uncertainty for Slovenia in the preparation of projections is the transport sector. In Slovenia, no projections of transport work are prepared that could be used later for the projection of the consumption of energy. Transport projections focus on projections used for the construction of the road network. A large uncertainty for projections in transport is also transit transport, since it cannot be captured by models covering only Slovenia; namely, transit flows originate from elsewhere. A better solution would be a European model. Prices of fuel in Slovenia are also highly significant for transit transport and sales of fuel in Slovenia and consequently consumption of fuel and emissions, since vehicles in transit transport fill their reservoirs where fuel is the cheapest. The estimation for the share of fuels sold to transit transport in 2008 amounts to 17 %.

The financial crisis will also affect the reduction of emissions of transit transport through the Republic of Slovenia; however, the emission data for the first quarter of 2009 indicates that transport emissions will be slightly lower than in 2008, but still significantly higher than in 2007 when the Republic of Slovenia was still trying to fulfil the Kyoto commitment only by domestic measures.

Uncertainties of estimate emissions in agriculture were assessed according to the IPCC (2000). Uncertainties were assessed by individual sources of emissions, while the total uncertainty was calculated in accordance with rule A in the case of additive amounts, or rule B when the estimation was a product of the data on activities and the emissions coefficient (IPCC, 2000). For the estimation of the uncertainty of base data and emission factors, the manual EMEP/CORINAIR (2002) was used. The uncertainty of methane emissions was estimated at 19 %, and 230 % for nitrogen oxide. Uncertainty for emissions of both gases in agriculture was estimated at 135 %.

5.6 Sensitivity of projections

The sensitivity of projections is analysed with the implementation of several scenarios. The emission projections were prepared on the basis of two scenarios of economic growth and residential construction (+ and ++) and two strategies for the implementation of measures – referential (REF) and intensive (INT). By combining scenarios and strategies we obtained

four different projections. Basically there aren't any differences between the individual projections of power and heat generation, since the installed units are based on the plans of companies that are almost independent of economic growth as well as measures for the reduction of emissions by the state. There is a different situation in the industry sector, where emissions are strongly dependent on economic growth. Explanation is needed for lower emissions with regard to the assumed low economic growth and referential strategy of the implementation of measures. This is a result of a high number of units for combined heat and power generation in the intensive strategy of the implementation of measures. Contrary to industry is the situation in other sectors, where the strategy of the implementation of measures has the main influence on emissions.

Table 5.6.1: Allocation of projections with regard to the basic projection considering various combined scenarios of economic growth and implementation of measures (+INT = 100)

Power and heat generation		**2008**	**2010**	**2012**	**2015**	**2020**
++ REF	[%]	100	100	100	100	100
++ INT	[%]	100	100	100	100	100
+ REF	[%]	100	100	100	100	100
+ INT	[%]	100	100	100	100	100
Industry						
++ REF	[%]	100	100	101	103	107
++ INT	[%]	100	100	102	104	109
+ REF	[%]	100	100	100	100	98
+ INT	[%]	100	100	100	100	100
Wider use						
++ REF	[%]	100	103	106	110	121
++ INT	[%]	100	100	101	102	106
+ REF	[%]	100	103	105	109	115
+ INT	[%]	100	100	100	100	100

Only one projection was prepared for the transport sector. The sensitivity of projections to the price of fuels in comparison with neighbouring countries is indicated in the table below. Sensitivity is estimated on the basis of the assumption that 95 % of transit transport decides on the filling of their reservoirs in neighbouring countries in case of lower prices of fuel in these countries.

Table 5.6.2: Sensitivity of emission projection in transport to higher prices of fuel in comparison with neighbouring countries

[%]	**2008**	**2010**	**2012**	**2015**	**2020**
Basic projection	100	100	100	100	100
Projection with a high price of fuel (in comparison with neighbouring countries)	100	79	77	73	66

5.7 Methodology

ENERGY

To prepare emission projections in the IPCC sector of Energy – excluding Transport – a set of models was used in which the main tool is a reference energy ecological model called REESSLO, made in the MESAP environment. In addition to the REES-SLO model this set of models consists of other models as well: a model to assess the market penetration of energy-saving final use technologies (PET-SLO), a simulation model for electrical load curves (ELAMSLO) and a model for calculating electricity production balance on a free market (ELBIVIM).

The main information flow between programme packages takes place in the following order:

- Firstly, the market shares of certain energy-saving technologies with final users are calculated using a PET-SLO model as a response to changing price signals, financial incentives and information campaigns. The assessment of market shares of certain technologies and their costs serve as input data in the basic model of the reference energy system (REES-SLO) in MESAP.
- MESAP calculates envisaged final energy use balances and assesses the local production of electricity based on the proportions of different technologies in the final use structure and connections with influential parameters (levels of economic activity in different sectors, number of households, etc.). The final use of electricity divided by sector, purpose, and production in local supply systems (in industrial, distribution and private units) is transferred for processing in the program to analyse the load shape.
- The ELAM-SLO program simulates the time course of load on the electricity transmission system, taking into account typical users and local producers.
- By using the ELBIVIM model, electricity production balances can be calculated on the free electricity market.

The proportions of electricity production in individual units calculated in Point 4 and related costs are transferred to the MESAP / REES-SLO model. Other balances are calculated for the whole planning period in the MESAP model: primary and secondary energies, balances of emissions (CO_2, CH_4, N_2O, SO_2 and NO_X) and total costs.

Reference Energy-Ecological Model REES-SLO

The technology orientated REES-SLO model was developed in the MESAP environment in the form of a linear network model for processes and connections (reference energy system), which enables the consistent modelling of energy use based on the needs of energy services and energy supply according to the Integrated Resource Planning method. A calculation of emissions, costs and other influential phenomena is made simultaneously. The logical process-technological model enables the simulation and evaluation of anticipated instruments and their influences, as the set of instruments are connected within strategies. The calculation model with a transparent model presentation prevents double counting and an unconnected consideration of effects, and provides a framework for consistent and equal access to the identification of instruments, measures and outputs in different sectors and subsectors. The model has been used before in the preparation of energy strategies and the National Energy Programme, as well as for specialist papers used as the basis for assessing potential reduction of GHG emissions and to prepare the Operational Programme for Limiting Greenhouse Gas Emissions and long-term balances for the period 2006-2026.

TRANSPORT

Two models have been used for transport emissions. For the assessment of the movements of fuel consumption, an energy model for transport has been prepared. The basis for the calculation of energy use in transport was the estimation of the development of transport work. However, due to the lack of quality projections of this variable in Slovenia, the small size of Slovenia and its exposure to transit flows, this assessment is very uncertain. Results of the European energy model PRIMES have also been used for the preparation of the assessment. On the basis of an assumption on shares of various types of transport and technical characteristics of vehicle fleets, the model calculates the energy use.

Transport emissions were determined by the COPERT model. Methodology for the determination of the common factor for road transport implements data on fuel characteristics, the number of individual types of vehicles, distribution of vehicles with regard to the legislation (EURO standards), driven kilometres by vehicles and road types, average speed of vehicles on various road types as well as emission factors for various road types, vehicles and emission types (hot emission factor – driving with a warmed-up vehicle; cold emission factor – warming up of the vehicle and evaporation of fuel factor).

INDUSTRIAL PROCESSES

The projection of CO_2 emissions in industrial processes was made on the basis of an industrial production growth projection, taking different emission factors for different activities into account. Also considered were the projections of participants of the emission trading obtained in the preparation process of the national plan for the allocation of emission coupons for the period 2008-2012. CH_4 emissions are constant, as their only source is ethanol production, which was considered to be constant. Emissions from the production of primary aluminium (CO_2, CF_4 and C_2F_6) were used in line with projections by the Talum company, which is the only primary aluminium producer in Slovenia. HFC projections were prepared by a simplified model that included all sources of HFC emissions. The model assumed the most likely development of equipment in the area of cooling techniques and the further development of the vehicle fleet of personal motor vehicles equipped with air-conditioning appliances.

WASTE

Solid waste emission projections were made using IPCC methodology. Emissions for waste deposited before 1977 that were mainly in a disorganized or badly compressed condition, where the covering of landfill was only realised after they were closed, were estimated according to the simplified IPCC methodology. When assessing landfills emissions with waste dumped after 1977, which was partly compressed and compacted, where most landfills were covered at the time, a more accurate IPCC methodology, with time series, was used. The calculation assumed a constant quantity of deposited waste, while the total share of biologically degradable waste was reduced. The composition of the biologically degradable part was constant and was summarised according to the results of screening analyses in Slovenia.

For waste water emissions calculation an IPCC methodology was used. The following input data was used to assess CH_4 emissions:

- planned biological treatment of municipal and industrial organically loaded waste water until 2015 in the Republic of Slovenia,
- organic burden,
- the proportion of actually decomposed organic substances,

– conversion factor and use of produced gas.

N_2O emissions were assessed according to the IPCC methodology with the assumption that all wastewater nitrogen ends up in the water environment.

AGRICULTURE

Agriculture emission projections were carried out according to the methodology prescribed by the IPCC (1997). The IPCC methodology anticipates agriculture emission projections based on statistical data on the physical volume of crop and animal production taking into account specific procedures characteristic of particular countries or areas. Data on the extent of crop production and animal breeding is treated separately, despite their interdependence. The model based on the IPCC methodology does not therefore enable optimization at the level of the agriculture sector as a whole, but only on separate segments. SORS statistical data and information obtained from experts in the agricultural sector were used for the assessment.

5.8 Bases for the preparation of projections

For the preparation of emission projections from energy sources, the results of long-term energy balances prepared for the period 2006-2026 for the Ministry of the Economy were used. Within the framework of balances, several scenarios were used, composed of two scenarios of economic development, two strategies for the implementation of measures and two scenarios for the development of the electrical-energy sector. The scenario composed of moderate scenario of economic growth (scenario +), intensive scenario of the implementation of measures and a balanced scenario of energy supply[31] was selected for the preparation of projections. The base year for the preparation of long-term balances was 2005. The only exception was the projections for transport, where a preparation of new projections was necessary due to large derogations from the first assessments for fuel consumption in 2008 and projections. New projections for transport were based on 2009 spring forecasts of the GDP growth by IMAD for freight transport and on long-term balance projections for passenger transport. Forecasts of GDP growth/decrease in Romania, Bulgaria, Poland, Hungary and Slovakia were used for transit transport.

The basis for the preparation of projections in agriculture is the agriculture development strategy.

The projections stipulate consistent fulfilment of the existing legislation and the implementation of adopted programmes – the Efficiency Energy Action Plan for the Period 2008-2016, the Operational Programme of Environmental and Transport Infrastructure Development for the Period 2007-2013, the Rural Development Programme for the Republic of Slovenia 2007-2013, the Operational Programme on Elimination of Waste with the Objective to Reduce the Quantity of Biodegradable Disposal Waste, etc.

[31] With regard to emissions, both energy supply scenarios are equal, since the only difference between them is that the balanced scenario doesn't include the additional unit of the nuclear power plant KRŠKO, while the NEK 2 scenarios includes it. All other units in both scenarios are the same.

Table 5.8.1: Added value indexes for the scenario of low economic growth

	2008	2010	2012	2015	2020
Agriculture, forestry, fishery	100	104	108	113	122
Industry	100	108	118	127	137
Construction	100	108	118	128	141
Services	100	109	119	129	145
TOTAL	100	109	118	128	142

Table 5.8.2: Added value indexes for the scenario of high economic growth

	2008	2010	2012	2015	2020
Agriculture, forestry, fishery	100	104	108	112	118
Industry	100	108	118	131	152
Construction	100	108	118	132	156
Services	100	109	119	134	164
TOTAL	100	109	118	133	159

6 VULNERABILITY ASSESSMENT, CLIMATE CHANGE IMPACTS AND ADAPTATION MEASURES

6.1 Introduction

Due to its geographic and climatic features, Slovenia belongs to one of the more endangered countries regarding climate change. Until recently, all attention was devoted only to the reduction of releasing greenhouse gases into the atmosphere. In Slovenia, we are coming to a point where we need an adaptation strategy to climate change; however, a national adaptation strategy to climate change still hasn't been adopted yet. If we wanted to mitigate the negative effects of climate change and use the possible positive ones, we would have to adapt in the best possible manner to climate change; namely, adaptation can reduce the risks for damage due to the existing and future harmful effects of climate change and use the positive ones. The adaptation measures can be early (preventive) or reactive. Preventive measures are important for the protection and/or preservation of the existing and future capital. At the same time, they will bring clear economic benefits, since the possible damage can be anticipated, which may decrease the endangerment of ecosystems, human health, economic development, assets and infrastructure.

6.2 What climate change can we expect

The expected climate change is to a large extent dependent on the selected scenarios of GHG emissions and of the selected model; however, the expectations may be summarised as follows. A significant increase in temperature in the warmer half of the year in comparison with the colder half of the year is expected. At the same time, we can expect a decrease in precipitation in the warmer half of the year and an increase in precipitation in the colder half of the year. The results of projections for five selected locations and individual seasons indicate that with regard to the period 1961-1990 by the end of the 21st century, summer will warm up the most (between 3.5°C and 8°C), followed by winter (between 3.5°C and 7°C), spring (between 2.5°C and 6°C) and autumn (between 2.5°C and 5°C). In accordance with the implemented projections, in the spring and autumn months we cannot expect any significant changes in precipitation; however, an increase in precipitation is expected in the winter months (up to 30 %), and a decrease in precipitation in the summer months (up to 20 %) (Bergant, 2007).

Bergant, K. 2007. Projections of Climate Change for Slovenia [In: Jurc, M. (editor.). Climate Change: impact on forests and forestry], Studia forestalia Slovenica, 130, 67-86.

6.3 Measures

A review of the analysis of documents and legislation on the subject of climate change in Slovenia has indicated that all strategic documents in the Republic of Slovenia at least mention measure that Slovenia will have to adopt due to climate change. The majority of measures refer to mitigation of climate change, and only a few refer to adaptation to climate change. In June 2008, the Government of the Republic of Slovenia adopted only the Adaptation strategy of Slovenian agriculture and forestry to climate change, referring to adaptation to climate change at the level of the entire sector. Considering that at least the areas of water and biodiversity management are extremely multisectoral issues, it is reasonable to treat the issue of adaption to climate change at the level of the entire country. A coordinated approach is proposed with the adoption of a national adaptation document, which would comprehensively regulate the measures that Slovenia will have to adopt. It

would be reasonable to prepare the adaptation policy with the identification of appropriate measures by individual areas or sectors and on all decision-making levels – at the national and local level. Coordinated and harmonised action would have to be provided at the highest national level (government); this is also one of the fundamental tasks of the newly established Government Office of the Republic of Slovenia of Climate Changes.

Already at the time of the adoption of the EU Green Paper, the Republic of Slovenia exposed some issues and determined the priority tasks (145th regular session of 8 November 2007). In Slovenia, the influences of climate change in the natural environment will be noticeable primarily in the changes of the water cycle, and consequently in the more frequent extreme weather events and the reduction of biological diversity; in the area of the economy, changes will be noticeable, similar to the rest of the EU, in the sectors of agriculture and energy as well as tourism. In society, the worst effects due to the enhancement of the frequency and intensity of extreme weather events will be noticeable in the areas of health and increase migration pressure from areas mostly affected by climate change.

In relation to the priority tasks of the climate change measures, the Republic of Slovenia estimates that special attention needs to be devoted to the following sectors in general:

- sectors that currently indicate a strong vulnerability for the current climate variability (for instance, agriculture),
- sectors where the vulnerability for climate change is increased by current trends (for instance, urban development, use of space),
- sectors where the adaptation time is the longest, and the subsequent development changes are connected with the highest costs (for instance, the use of space, infrastructural objects, forestry, urban development, building stock).

6.4 Action Areas

Considering the views of Slovenia to the climate change problem in Europe and Slovenia, priority measures and emphasis on future adaptation to climate change, the Republic of Slovenia has especially exposed the following action areas:

- sustainable and integrated management of water sources for water power production, prevention of floods, provision of water for the enrichment of low flow rates, and preservation of environmental function as well as provision of water for other needs;
- sustainable management of forest ecosystems, adjusted to changes, for the provision of their environmental function as well as being a source of biomass, wood for products for the conservation of carbon, and carbon sinks;
- spatial planning as one of the important preventive instruments for the adaptation to climate change through the processes of integral planning of spatial and urban development;
- sustainable use and preservation of natural wealth and the preservation of biodiversity as well as ecosystem services with measures and policies that enable an enhanced resistance of ecosystems to climate change, and the role of biological diversity in integral adaptation measures;
- informing and awareness on the consequences of climate change and adaptation possibilities.

For years, the most endangered sectors have been agriculture and forestry; therefore, they are also the only sectors for which a national adaptation strategy was adopted.

6.5 Expert groundwork for adaptation

Efficient and effective adaptation can naturally be based only on reliable data with appropriate interpretation and selection that is directly adjusted to the requirements of various stakeholders planning or implementing adaptation. Considering the information of the National Meteorological Service, the requirement of adaptation to climate variability is also indirectly regulated by the Meteorological Activities Act. Among its principles, the Act indicates that »in the adoption of policies, strategies, programmes, plans and general legal acts as well as the implementation of other matters under its jurisdiction, the state and municipality shall consider the possibilities and consequences that weather or climate change may cause to people and their property (integrity principle).« Hereby, we have to be aware that the conditions are not permanent, but are changing, which has to be considered in the preparation of acts of the indicated legal acts.

6.6 Activities of the ARSO

Irrigation is one of the measures in order to prevent the consequences of drought and provide drought management; hereby, we carry out our activities in our country as well as across its borders. Namely, the frequency of drought and the large diversity of this phenomenon in South-Eastern Europe have resulted in a joint initiative to fight the phenomenon of drought that has been strongly influencing the welfare of population in this region. On the initiative of the United Nations Conventions to Combat Desertification (UNCCD) and the World Meteorological Organisation (WMO), a project of the Drought Management Centre for South-Eastern Europe (www.dmcsee.org), representing the interests of 13 countries of the region, was established; in September 2006, Slovenia or the Environmental Agency of the Republic of Slovenia on its behalf has taken over the role of its host country. The centre was established with the purpose of coordinating and promoting the development, evaluation and implementation of tools for risk assessment of drought in the area of South-Eastern Europe; this would result in better readiness for drought and reduce its negative effects. The majority of attention is currently devoted to the review of the availability of necessary data for the preparation of risk assessments with regard to drought, selection of uniform methodology for drought or water balance monitoring (on the basis of measurements or model calculation) and the development of a methodology for vulnerability assessment of the environment and risks connected with drought in the area of South-Eastern Europe.

On the basis of the Meteorological Activities Act, the ARSO or the National Meteorological Service is the only competent authority to issue warnings of meteorological disasters, which contributes to the prevention of victims and reduction of damage in cases of extraordinary weather events. In order to warn the population of Slovenia and its visitors, we are closely cooperating with the Administration for Civil Protection and Disaster Relief; furthermore, we are also cooperating with the Slovenian Nuclear Safety Administration in the area of providing meteorological data and forecasts in case of nuclear disasters anywhere in Europe. We are also participating with our forecasts in provision of fire safety and contribute expert groundwork for the declaration of fire risk levels in Slovenia. ARSO also carries out avalanche services within a limited scope.

Within the framework of its regular activities, ARSO has been preparing information adapted to sectors, serving stakeholders for sustainable operations. Within the framework of this information, we could also upgrade these services; they would also include the envisaged development of climate and hydrological as well as ecological conditions. We expect the upgrade within this meaning also within the framework of the establishment of the Global Framework of Climate Change.

6.7 Information Flow

For efficient information and accessibility of appropriate expert groundwork necessary for efficient adaptation to climate change, it shall be necessary to establish an internet portal with all the relevant information and examples of good practice. The web pages of ARSO currently contain a chapter »climate change« where the majority of information on climate change for the entire Ministry of the Environment and Spatial Planning is collected.

7 FINANCIAL SOURCES AND TECHNOLOGY TRANSFER

Slovenia is not a member of the Annex II group; therefore, reporting on new and additional financing against climate change is not relevant.

7.1 Official Development Aid

In accordance with the decisions of the EU Council (May 2005) and the European Consensus on Development Policy (December 2005), Slovenia has been endeavouring to increase the share of official development aid and achieve the level of 0.17 % of GNI by 2010 and 0.33 % by 2015. In 2008, the funds for international development cooperation amounted to 46.871.239 EUR, which represents 0.13 % of GNI (in 2006 and 2007, 0.12 % of GNI). More than a half of these funds was intended to multilateral aid; the majority through the EU budget and others in the form of contributions for international organisations and institutions. These funds were, in 2008, also used for the payment of UNFCCC membership and the Kyoto Protocol for the amount of 28.647 EUR and UNCCD membership for the amount of 6.720 EUR. In 2007, multilateral aid in the form of contribution to the GEF has increased strongly: in 2007 and 2008 it amounted to a little under 1 million EUR, while in 2009 to 1.2 million EUR.

Two thirds of bilateral aid was directed towards the countries of the Western Balkans. A larger part of bilateral aid was given in form of the co-financing of projects; with regard to sectoral allocation in 2008, the significant increase was achived, noticed, recoreded? for the purposes of environmental protection and economic infrastructure connected to climate change (12.4 % of total bilateral aid).

7.2 Support and promotion of development, implementation, diffusion and financing of technology transfer and access to environmental technologies

In the area of programmes and activities to support and promote the development, aplication and diffusion and financing of the transfer of and access to environmental technology, knowledge, practice and processes with regard to climate change, on the basis of Article 10c of the Kyoto Protocol, and in the area of education and the strengthening of institutional and human capacities, especially in developing countries, on the basis of Article 10e of the Kyoto Protocol, Slovenia implemented and participated in the following projects within the framework of the **activities undertaken by governments:**

1. Within the framework of international development cooperation, Slovenia as the donator co-financed within the framework of the UNIDO the following projects in connection with climate change:
   - Conference on development planning and strategy of biofuels in Africa, Ethiopia (project value 35.636 EUR)
   - International conference on the development strategy of renewable energy sources in Africa, Senegal (35.000 EUR)

- Regional conference on the development strategy of the production of biofuels in the area of South-Eastern Europe, Croatia (50.000 EUR)
- Establishment of the National Clean Production Centre, Ukraine (299.000 EUR)
- Establishment of the National Clean Production Centre, Serbia (587.000 EUR)
- Establishment of the National Clean Production Centre, Montenegro (Slovenia as an independent donator co-financed 160.000 EUR)
- Preparation of national strategic documents and expert groundwork for the comprehensive management of industrial waste and other waste, Macedonia (Slovenia as an independent donator co-financed 445.000 EUR, the operator of the project was the Slovenian company Riko d.o.o.).

2. Within the framework of other international development aid, Slovenia co-financed the following projects:

   - *Transfer of good practices of sustainable development of the Alpine Convention to the Mojkovac municipality in Montenegro*; in cooperation with NGO CIPRA Slovenia, the Association for the protection of the Alps (co-financing of the RS for the amount of 14.540 EUR). The purpose of the project is to establish contacts and cooperation between the operators of good practices in Slovenia and in Mojkovac, and to exchange experience and training; among other things, also in the area of local management of the sustainable development of tourism.
   - *Sustainable energy for sustainable development*; *in Macedonia and the Ukraine*; in cooperation with NVO Fokus (co-financing of the RS for the amount of 25.000 EUR). The project is focused on the promotion of sustainable energy between children and teachers or operators of schools. Through the transfer of experience from Slovenia in the areas of the efficient energy use and consumption of renewable energy sources, the project has been building upon the capability of NGOs from Bosnia and Herzegovina, Macedonia and the Ukraine to implement pilot activities in selected locations; namely, awareness and practical activities.
   - *Slovenian development aid* 4; in cooperation with NVO Vitra (co-financing of the RS for the amount of 25.000 EUR). The purpose of the project is to transfer knowledge and experience in the area of efficient energy use and renewable energy sources from Slovenia to private and public buildings of the regions (municipality) of four countries of the Western Balkans: *Serbia*, *Bosnia and Herzegovina*, *Macedonia and Montenegro*. A significant purpose was to motivate users through courses, workshops and the media, and to allocate development aid (energy-saving bulbs) donated by the HSE (Holding Slovenskih Elektrarn). Free-of-charge allocation of bulbs will encourage target groups to participate in classes and workshops. This project established a long-term cooperation of nongovernmental organisations, municipalities and countries of the Western Balkans and Slovenia; furthermore, partnerships in common projects will be established as well.
   - *Environmental education for sustainable development* – the implementation of reforestation as a school practice in elementary and secondary schools within the county of Anjozoroba on Madagascar (co-financing of the RS for the amount of 14.328 EUR).
   - *Education Programme in the Area of Energy*; within the framework of the CEP (Centre for European Perspective) (8.396 EUR).
   - *Strategic Forum Bled 2008*: Energy and Climate Change: Si.nergy for the Future; project within the framework of the CEP (111.748 EUR). The main topic of the third international conference was the interdependence of climate change and energy

efficiency, primarily in the Western Balkans; therefore, numerous state representatives from this area participated in the conference.

- *Preparation of the national water management strategy in the Republic of Macedonia*

The water management strategy will include all waters and shall present the basic document for the planning and development of water management in the Republic of Macedonia. The recipient of the donor funds of the Republic of Slovenia is the Ministry of the Environment and Spatial Planning of the Republic of Macedonia, which exposed the strategy as the first cooperation priority with Slovenia. The total project value shall amount to €348.000, while the donation of the RS amounts to 210.000 €.

3. Within the framework of transnational cooperation in South-Eastern Europe (SEE Programme), Slovenian institutions, private as well as public, have been participating as project partners in projects connected to the problems of climate change. Namely, in four projects:
   - As the leading partner in the project Drought Management Centre for South-Eastern Europe (DMSCEE: http://www.southeast-europe.net/en/projects/approved_projects/?id=83). Slovenia is the host country of the Drought Management Centre; the project also includes other countries: Albania, Bosnia and Herzegovina, Bulgaria, Montenegro, Greece, Croatia, Hungary, Macedonia, Moldavia, Romania, Serbia and Turkey. (This project was already indicated in the description of the meteorological support to agriculture)
   - As a partner in the project Climate Change and Impacts on Water Supply (CC-Waters: http://www.southeast-europe.net/en/projects/approved_projects/?id=65)
   - As a partner in the project Measurement in Natural Disaster Management (MONITOR II: http://www.southeast-europe.net/en/projects/approved_projects/?id=106)
   - As a partner in the project SEE HYDROPOWER, targeted to improve water resource management for growing renewable energy production (SEE HYDROPOWER: http://www.southeast-europe.net/en/projects/approved_projects/?id=97).

4. Within the framework of the Ministry of Higher Education, Science and Technology, international projects are conducted within the framework of the EUREKA initiative and within the framework of bilateral cooperation, primarily in the area of the Western Balkans. Slovenian researchers and the RS as the co-financing party participate in these projects. The largest Slovenian project of the EUREKA projects is SICRIS – Slovenian Current Research Information System implemented in the countries of the Western Balkans (Albania, Bosnia and Herzegovina, Montenegro, Macedonia, Serbia and Kosovo) as well as in Bulgaria and Croatia. The project presents the establishment of an information infrastructure of science, education and culture. The long-term objective is to integrate all university and research organisations as well as university, special and general libraries in target countries into the COBISS.net network by 2015, and to establish a compatible system for the evaluation of research activities. Slovenian development aid to participating institutions (1.5 million EUR) is of key importance for the establishment of COBISS in target countries. Furthermore, other projects within the framework of EUREKA in the area of climate change are also research projects with Croatia in the area of geothermal energy (800.000 EUR), with Serbia in the area of water supply and management (400.000 EUR) and with Macedonia in the area of efficient energy use (520.000 EUR).

With regard to bilateral science and technology cooperation, Slovenia has been cooperating as a priority with the countries of the Western Balkans. The following projects in connection with climate change were implemented in 2008 and 2009: Integrated water management in environmentally friendly vegetable production (with Albania), Nano-crystalline Si as a possible candidate for third generation solar cells (with Croatia), Development of cascade heat pumps for the use of geothermal and sub-geothermal water sources for high-temperature central heating (with Serbia).

The Faculty of Energy Technology of the University of Maribor has been implementing activities in the area of the internationalisation of the faculty. Within the framework of the ERASMUS programme, a student exchange has been conducted; furthermore, bilateral agreements with the universities in Croatia and Montenegro have been concluded. Discussions on cooperation are still running with the universities in Macedonia, Bosnia and Herzegovina, Serbia and Albania.

5. The International Center for the Promotion of Enterprises (ICPE) in Slovenia has cooperated in programmes connected to environmental technologies and sustainable development at national and international levels. Among the more frequent programmes are those referring to sustainable and coastal development (ecology and the sea), regional sustainable development of entrepreneurship, transport and tourism with regard to the environment and clean environmental technologies, which are also the focus of the programmes by the ICPE for the development of less developed countries in order to adapt to climate change.

- In cooperation with the University of Delaware and the Science Division of NATO, the ICPE organised a Transatlantic conference of strategies for the integral management of coastal areas. Currently, the ICPE is preparing a management programme of the river basins of the Danube and the Sava as well as the Adriatic in the preparation of economic cooperation and transport.
- Together with the IJS, the ICPE has been developing the „green MBA" programme that will focus on project management for the mitigation of and adaptation to climate change.

6. *The Slovene Export and Development Bank* (following: SID), which is state owned, has also been performing financial services in the area of environmental protection and energy efficiency; namely, the financing of measures for nature preservation, appropriate waste management, appropriate use of natural resources, acceleration of investments in infrastructure for environmental protection, promotion of the use of renewable energy sources and promotion of efficient energy use. For this purpose, the SID intended to invest 201.5 million EUR funds in the period 2008-2009 through banks (indirect financing), and directly to companies. The majority of these funds are intended for the development projects in the area of research, development and innovation in car industry, directed to the fulfilment of the EU requirements on CO_2 emissions and other emission regulations, especially in the development of new generation technologies endeavouring to reduce emissions and achieve higher efficiency. Among those, 13 projects of six companies for a total value of 104 million EUR were financed by the end of 2009, which will contribute to the reduction of CO_2 emissions to 3.9 million t per year.

The SID has been indirectly financially supporting projects with positive eco influence, also in the case of the financing of international economic projects. For

instance, in 2008 the SID in cooperation with one of the business banks financed 2 companies for a total value of 2 million EUR (38 % of the investment value) for the purpose of constructing 5 small hydroelectric power plants in Macedonia that will generate 12.039 GWh annually.

In the **private sector** area, Slovenian companies are acting primarily in the energy sector in the countries of South-Eastern Europe as investors and operators. Among these investments are also hydroelectric power plants in Macedonia, Bosnia and Herzegovina, Montenegro and Serbia. In this region, projects in the following areas are in preparation: wind power plants, biomass power plants and solar power plants. If the legislation in these countries in the area of energy was better regulated, there would be substantially more projects.

Within the framework of the initiative by the Faculty of Energy Technology, Slovenian energy companies have awarded scholarships for domestic and foreign students (currently, there are 9 students from Montenegro and one from Croatia in Slovenia with regard to this project).

8 RESEARCH AND SYSTEMATIC OBSERVATION

8.1 Introduction

The central role in research and development (RRD) is played by the Ministry of Higher Education, Science and Technology (MVZT), the Slovenian Research Agency (ARRS) and the Ministry of the Economy (MG). The MVZT is responsible for preparing policy documents and legislation on research policy and overall analysis and monitoring of research work. ARRS is responsible for financing scientific research from the national budget, while the MG mainly operates in the field of promoting RDD in the economy, where the Chamber of Commerce and Industry is also active (GZS).

The basic legal document for RRD is the Research and Development Act, while the further development of RRD is defined in the National Research and Development Plan for 2006 to 2010 and the Resolution on the National Research and Development Plan for 2006 to 2010, in which one of the most promising areas of research is research on technology relating to the sustainable economy.

The GDP share that Slovenia allocates to the RRD has been nominally increasing; however, we are strongly staying behind our set objectives. The data on the direct share intended for research and development for the mitigation of and adaptation to climate change has not been monitored separately.

8.2 International Cooperation

International cooperation by Slovenia in research activities largely takes place within European programmes. Slovenia participates in the following: the European Co–operation in the field of Scientific and Technical Research (COST), the Intelligent Energy for Europe programme (EIE), EUREKA, which is intended to promote technological development and high technology, the EU's Sixth and Seventh Framework Programme, Intereg and in the joint research centre of the European Commission. Slovenia also participates in the UN development programme. Regional cooperation also takes place within the Central European Initiative (CEI/SEP) and the TriCo initiative. A wide range of bilateral cooperation is also underway. International cooperation in systematic observation is taking place within a wide range of programmes that in most cases operate under the auspices of the WMO or UN. Due to budget rules that apply to the entire state administration, international cooperation of the National Hydrological Service and National Meteorological Service in international projects is limited for all projects financed on the basis of a refund of used funds. A part of international projects is also described in measurements and observations, since they are included in international projects and programmes.

In 2005 the Slovenian Government adopted a decision for Slovenia to join the Intergovernmental Group on Earth Observation – GEO.

8.3 Systematic Observation and Measurement

Systematic observation and measurement has been carried out by the Environmental Agency of the Republic of Slovenia (ARSO), within the framework of which the National Hydrological Service and National Meteorological Service are operating. For the needs of adapting to climate change, it shall be necessary to strengthen the existing climate monitoring primarily in the areas of analyses and the interpretation of measurement results and in the area of projections of future climate conditions. We can provide appropriate monitoring of signs of climate change only in this way and provide the necessary expert groundwork for efficient adaptation to climate change.

8.3.1 Atmosphere

ARSO has been carrying out measurements of air pollution in permanent measuring stations, including background measurements, air quality measurements with mobile stations and diffusive samplers and precipitation quality measurements. Measuring points are located in larger towns and in areas of larger air pollution sources. In 12 permanent measuring stations for the monitoring of external air quality, the measurement of sulphur dioxide, nitric oxides, carbon monoxide, ozone, volatile hydrocarbons, PM_{10} and $PM_{2,5}$ particles and meteorological parameters is carried out. The selection of parameters in individual stations is dependent on the problems in individual locations; for instance, the ozone concentration is monitored in all locations in Primorska region. In Ljubljana (Bežigrad), Maribor and Iskrba pri Kočevski Reki, measurements of individual metals in particles are carried out. Sampling for these analyses is conducted by referential gauges. The stations Iskrba pri Kočevski Reki and Krvavec are located in areas remote from large sources of pollutants. In these stations, background measurements of air pollution are carried out; the stations are also included in the international network EMEP (European Monitoring and Evaluation Programme) and WMO-GAW (World Meteorological Organisation – Global Atmosphere Watch).

Within the framework of the Ordinance on the areas of the highest environmental burden and on the programme of measures for improving the quality of the environment in Zgornja Mežiška dolina, measurements of PM_{10} particles and analyses of lead, cadmium, arsenic and nickel in particles are carried out in Črna, Mežica and Žerjav.

Climate monitoring has been conducted within the framework of the activities of the National Meteorological Service in accordance with the Meteorological Activities Act, which also stipulates referential climatological stations, while the largest problem in practice remains the provision of the stability of their close surroundings. The request to protect the surroundings of the referential climatological station is frequently contrary to the local development and building plans. For the needs of monitoring of climate change in Slovenia, we need at least 5 to 6 referential climatological stations.

In 1993, we joined the ALADIN consortium that takes care of the development of the same model for numeric weather forecasting and development of its successors, ALARO and AROME. Nowadays, the consortium joins 16 European and North-African countries. Even before entry into the ALADIN consortium, in 1991 we participated in the establishment of the Regional Cooperation for Limited Area Modelling in Central Europe (RC-LACE) with a first seat in Prague. Later on, RC-LACE developed from a regional centre into a regional programme, and nowadays it joins seven national meteorological services from Central

Europe that use the numeric model ALADIN and its successors in their operational work, and form a subgroup within the framework of the ALADIN consortium.

Slovenia as a WMO member and signatory of the United Nations Conventions to Combat Desertification (UNCCD) has actively participated since 2006 in their initiative on the establishment of the Drought Management Centre for South-Eastern Europe (DMCSEE). Besides Slovenia that took over the role of host country, the DMCSEE's centre includes 12 other countries: Albania, Bosnia and Herzegovina, Bulgaria, Montenegro, Greece, Croatia, Hungary, Macedonia, Moldavia, Romania, Serbia and Turkey.

At the beginning of 2008, the National Meteorological Service joined the Network of European Meteorological Services (EUMETNET) and became its 24th member. EUMETNET is an informal association that was founded with the purpose of establishing and implementing various programmes that will contribute to the common development of meteorology in the area of Europe and individual member states. The meteorological areas, covered by EUMETNET by its programmes, are the following: meteorological observation and measurement, archiving, transmission and processing of obtained data, basic products for the preparation of weather forecasts, development, research and education as well as unprofitable aid to the national meteorological services of non-members.

On 19 February 2008, Slovenia also became a member of the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) with a seat in Darmstadt, Germany. EUMETSAT is an intergovernmental organisation, the basic tasks of which are the development, maintenance and use of operational meteorological satellites for monitoring and analysing current weather conditions, climate and their variability. By entering the EUMETSAT, Slovenia has access to all satellite data and products of this organisation.

Recently we have begun with formal discussions regarding the full membership of Slovenia in the European Centre for Medium-Range Weather Forecasts (ECMWF) with its seat in Reading, Great Britain. This is the leading organisation in the area of numeric modelling of weather on a global scale. Slovenia concluded a cooperation agreement with the ECMWF in 1997, which enables Slovenian access to tools and products constantly used by the co-workers of the Meteorological Office.

Within the framework of its regular activities of monitoring and forecasting weather, hydrological and ecological conditions, ARSO has also been preparing and issuing warnings on dangerous or harmful weather, hydrological and ecological events. In 2008, upon entry into the Network of European Meteorological Services (EUMETNET), Slovenia also joined the European system for alerting the public to extreme weather events - METEOALARM (http:/www.meteoalarm.eu).

Within the framework of the cohesion project »Upgrade of the monitoring system for the water environment in Slovenia (2008-2013) - SSSV«, the installation of 80 automatic meteorological stations is planned, which will upgrade and supplement the existing network of classic and automatic meteorological stations. Furthermore, also planned is the installation of the second meteorological radar, which will present a pair to the existing radar on Lisca and will provide a comprehensive review of precipitation events in the area of Slovenia. This is especially important for the needs of monitoring and forecasting of intensive precipitation events that frequently cause torrent floods in the area of Slovenia.

8.3.2 Systematic observation and measurement of waters

The surface water programme includes the monitoring of rivers, lakes and sea conditions and programmes for the monitoring of the water quality in the areas of special regimes. The basic units to determine the water conditions with regard to environmental objectives are water bodies. In Slovenia, 155 water bodies were specified in surface water, and 21 in underground water. The water quality monitoring programmes are divided into the supervisory and operational monitoring of conditions. The supervisory monitoring of conditions is carried out in order to provide an assessment of the total conditions of waters in the water area, and contains all the quality elements for the definition of ecological and chemical condition. It is repeated at least every six years. The operational monitoring of conditions is intended for the assessment of the water condition of water bodies, for which a risk exists that they shall not achieve a good condition status by 2015; it also enables an assessment of the effects of measures for the reduction of pollution. It has been implemented annually in places, where over-pollution is determined on the basis of the analysis of influences and pressures or by the supervisory monitoring of conditions. The operational monitoring of conditions includes only those biological, physical-chemical and hydro-morphological elements that are mostly sensitive to the pollution of water bodies. For the assessment of chemical conditions, analyses of basic physical-chemical parameters, priority substances and national relevant substances are carried out. The ecological condition is evaluated on the basis of biological elements of quality (phytoplankton, aquatic flora and benthic invertebrate fauna) as well as supporting physical-chemical and hydro-morphological elements.

A highly important task of the ARSO is also the implementation of intercountry and international monitoring in accordance with bilateral agreements and international conventions. Monitoring is carried out with neighbouring countries on border watercourses, while within the framework of the Danube Convention we are participating in the international monitoring of the Danube. Furthermore, within the framework of the Barcelona Convention we are monitoring the sea quality and intake of pollution from the land. The international commitments also include the preparation of data and reports on water quality in Slovenia. Reports and data are transmitted to the European Commission, the European Environmental Agency, Secretariat of the Danube Convention, UNEP/MAP Secretariat and other institutions on the basis of Slovenia's contractual obligations. Furthermore, we also participate at the national and international level in expert groups for the implementation of the Water Directive. Within the framework of the Danube Convention, we are participating in the expert group responsible for the assessment and classification of water courses in the Danube river basin and in the group »Information Management & GIS«. The Water Quality Division has also been participating in the project INCOMME (financial mechanisms LIFE+) referring to the problem of highly urbanised aquifers of Ljubljansko polje and Ljubljana moor regarding pollution with chlorinated organic solvents.

The key tasks of the Surface Waters Analysis and Forecast Division are the processing, interpretation and analysis of hydrological data for surface water courses, lakes and the sea, as well as the prognosis of conditions with the purpose of monitoring, forecasting and informing the public on hydrological conditions and warning the public of extreme hydrological events. The data serves as a basis for the preparation of hydrological yearbooks, assessment and research of hydrological characteristics of river basins, calculation of hydrologic balance in Slovenia, calculation of river stage indexes, analyses of changes in the regime of surface waters, and preparation of studies on extreme hydrological events.

Within the framework of the analysis of surface waters, hydrological parameters, such as the water level, rate of flow, water temperature and content of suspended material, are being monitored, controlled, processed and interpreted. Analysis of the results of hydrometrical terrain work and the preparation of flow curves is conducted through a conversion of data on water levels in a quantity assessment of rates of flow, implementation of longitudinal adjustment, control and supplementation of missing sets of data. Regular work includes the keeping of records on watersheds or water collection areas of hydrometric stations and its basic characteristics, studying of effluent characteristics and analysis of changes in the regime of surface waters, calculation of hydrologic balance, periodical typical rates of flow, analyses of trends of hydrological parameters, calculation of hydrological indicators of environment, water level indexes for the needs of water recovery, balance calculation of the mid-annual water outflow from the area of Slovenia in the Danubian basin and the Adriatic sea.

Climate change is also noticeable in hydrological parameters – especially in the rate of flow and temperature of surface waters. By analysing hydrological draughts we are also trying to find an appropriate methodology for their evaluation and forecasting. Rates of flow of international water courses are being harmonised with neighbouring countries on the basis of agreed upon hydrological criteria. For the needs of simpler decisions in issuing warnings of harmful water activities, keeping records and monitoring of floods, a database of floods is being established, containing data on floods from the past and floods kept by the Administration of the Republic of Slovenia for Civil Protection and Disaster Relief. An important task is also the keeping of a database of hydrological data and archiving controlled data in the information system.

The purpose of the monitoring, forecasting and public information on hydrological conditions in Slovenia and warning of extreme hydrological events of surface and underground waters and the sea is to protect assets, health and lives. The Slovenian National Service transmits selected hydrological data on Slovenian rivers to the Global Run-off Data Centre (Koblenz, Germany), which keeps a database of global data on rates of flow of rivers under the auspices of the World Meteorological Organisation. The data is also transmitted to the European Environmental Agency and EROSTAT. Furthermore, we are also operationally participating in the alert operational system of Danubian countries for the pollution of waters with international consequences. We are also part of the European Flood Alert System, the purpose of which is to warn of higher water levels of larger rivers in Slovenia.

International activities are also bound to reporting to the European Environmental Agency and the World Meteorological Organisation – Commission for Hydrology, participation in the preparation of the report on the environmental condition after the Alpine Convention and participation within the framework of the project development hydrogeological activities - "Water Management Strategies Against Water Scarcity in the Alps" and "Climate Change and Impacts on Water Supply". Especially important is also cooperation with the "Institute of Chemistry and Dynamics of the Geosphere: Agrosphere" from Juelich (Germany), the purpose of which is to prepare the GROWA-SI model that will enable the assessment of the inflow of aquifers for the entire territory of Slovenia.

In order to establish a quality and sustainable monitoring of the environment, ARSO established the project »Upgrade of the system for monitoring and analysing the conditions of the water environment in the Republic of Slovenia«. Especially important is the aspect of balanced spatial planning and the construction of representative measuring networks that will

support the evaluation of the conditions of water bodies. From the environmental protection point of view and the efficient and sustainable use of natural sources, the protection of drinking water is very important, which includes the definition of hazardous toxic substances in the environment and naturally also the aspect of protection of health, lives and assets of individuals before the consequences of natural disasters. The latter has to be based on accurate and timely meteorological and hydrological forecasts and the provision of data in real time. The planned scope of funds is 32 million EUR, of which 85 % will be provided by the EU; the project will be implemented by the end of 2015.

8.4 Research

In accordance with the Meteorological Activities Act, the Meteorological Office as the operator of the National Meteorological Service, among other tasks, also studies the »climate change and its prognosis«. Namely, besides the knowledge of climate variability in the past, authentic scenarios of future climate change considering the climate variability of Slovenia will be necessary for efficient adaptation to climate change.

The basis for the climate variability analysis is the care of obtaining quality data on the climate and the keeping of appropriate databases. The National Meteorological Service obtains climate data by permanent measurement and observation within the framework of the national network of meteorological stations; it also takes care of their databases. Both matters are imposed by the Meteorological Activities Act. In autumn 2008, a three-year internal project »Climate Variability in Slovenia« was commenced. The purpose of the project is to obtain and provide to users a comprehensive review of the variability of the climate, primarily in the past 50 years, included in the comprehensive climate database. The results of the project will provide a view of the climate change in the individual areas of Slovenia in the past, the measured trends of changes, and which areas of Slovenia are more sensitive to climate change. The results will also provide a conclusion on how the climate change was reflected in the frequency of extreme weather events endangering assets or even lives of inhabitants in Slovenia.

The Meteorological Office of the Environmental Agency of the Republic of Slovenia cooperates in the project of the Department of the Environment at the University of Ljubljana and the Atmosphere Research Centre at the University of Nova Gorica, *Numeric climate modelling with high resolution for the preparation of climate change scenarios in Slovenia for the 21st century.* The basic purpose of the project is to critically evaluate the available results of regional climate models that include the territory of Slovenia, and compare them with the results of own simulations, which will contain the numeric model ALADIN with resolution of 9 km in the global model ARPAGE-Climate. Climate modelling in such high resolution will enable us to get a detailed view of the expected climate change from the view of frequency of extreme weather events, such as draughts, heat waves, torrent floods, thunderstorms, etc. Until the preparation of detailed scenarios of climate change for Slovenia, the available evaluations of climate change and experience from extreme events in the past will be used for studies of vulnerability and influence as well as for the preparation of adaptation strategies.

Furthermore, the state has financed, through ministries, numerous research projects in the area of climate change. Initiators and co-financers of these research projects were the Ministry of the Environment and Spatial Planning, the Ministry of Agriculture, Forestry and

Food, and the Ministry of Defence. The latter co-financed the project Scenarios of climate change as the basis for the endangerment evaluation due to future weather-conditioned natural disasters.

Through the FGG and the company PUH, Slovenia has been involved in two European projects MONITOR-II and PARAmount that also indirectly refer to the consequences of climate change; it has also been involved in the international project PLANALP.

The following is a list of research projects by years, co-financed by the Ministry of the Environment and Spatial Planning.

2003

- Preparation of the evaluation of endangerment by snow avalanches and protection and rescue measures at increased endangerment with snow avalanches
- Novelation and upgrade of the information system on landslides and inclusion in the GIS_UJME database
- Preparation of bases, data and scenario for the FOCUS models that are intended for the risk assessment of the environment in the use of phytopharmaceutical preparations in Slovenia

2004

- Research of aerosols in the atmosphere as indicators of pollutant transporters by air flows over Slovenia
- Introduction of FOCUS models in Slovenia, intended for the risk assessment of water pollution in the use of phytopharmaceutical preparations
- The use of dispersion models in planning the improvement and preservation of external air quality
- The role of fast-growing tree species in the protection of waters from nitrate pollution
- Preparation of environmental standards for chemical substances in water environment
- Strategy of the co-existence of genetically modified field crops with conventional and organic farming and bases for the establishment of the register of genetic sources
- Influence of breeding of fish in warm-water fish farms and gravel pits on the water ecosystem

2006

- Definition of the condition of biological diversity of forest ground ecosystems – establishment and standardisation of methodology and databases as well as application in selected forest research areas
- Evaluation of ecological remediation ground potential of Ljubljana moor and modelling of the transport of contaminants in drinking water
- Corporate public service in the area of water supply, discharge and cleaning of waste water and the market

- Harmonisation of technologies for the comprehensive traceability of genetically modified organisms in production of field crops and their co-existence with conventional and ecological production
- Development of inter-network version of a system for the recording and mapping of fungi in Slovenia: Boletus informaticus.NET
- Sustainable development of protected areas – integral approach and active role of the state; sustainable management in protected areas from the view of achieving more coherent regional development
- Age, source and dynamics of waters in deep aquifers of Ljubljana moor

2007

- Manufacturing of raw materials and production of biodiesel and biolubricants for the needs of the Slovenian market

A problem for users is the fragmentation of research activities and lack of comprehensive presentation of results in a form that is accessible and understandable, and especially adapted to direct use in different economic sectors. We are missing an institution that would perform a connecting role and take care of an internet-based platform with all the relevant information on climate change. Large expectations are being laid upon the newly-established Government Office of the Republic of Slovenia of Climate Changes.

9 EDUCATION, TRAINING AND PUBLIC AWARENESS

9.1 General characteristics

According to the Eurobarometer opinion poll in the spring of 2008, 89 % of the Slovenian population thinks that climate change is a very serious problem, and is according to the severity of the problem classified in the top of EU 27; only 3 % of population thinks that climate change isn't a very serious problem. 80 % of the Slovenian population thinks that climate change is one of the largest problems in the world. Almost an equal percentage is devoted to poverty as well as the shortage of food and drinking water (79 %). In connection with the responsibility of various players and their activities in reducing emissions, 93 % of the Slovenian population thinks that large companies and industry are not doing enough with regard to climate change, while 86 % think that the citizens are also not doing enough. The 52 % who said that they have already commenced with activities with regard to fighting climate change have exposed the following activities: waste separation, reduction of energy and water consumption in their households. However, causing concern is the data that 52 % of those who haven't undertaken anything yet expect a change in behaviour only from the government, companies and industry.

The key players in the area of Kyoto Protocol implementation with regard to public awareness of the problem of climate change, causes and consequences as well as activities to fight climate change are at the governmental level the Ministry of the Environment and Spatial Planning, the Ministry of the Economy, the Ministry of Transport, the Ministry of Agriculture, Forestry and Food and the Ministry of Finance. New and more harmonised activities can also be expected with the commencement of the operation of the Government Office of the Republic of Slovenia of Climate Changes, which will within the framework of the government take care of the promotion and participation in the preparation of public awareness, training and education programmes with regard to climate change.

9.2 Education

Responsibilities and powers relating to the development and operation of an education and training system have been allocated to the Ministry of Education and Sport, local communities (municipalities), expert panels appointed by the Government of the Republic of Slovenia, and institutions established to develop and provide advice on education (Slovenian Education Institute, Slovenian Vocational Education Centre, Slovenian Adult Education Centre, and the State Examination Centre).

After 2000, Slovenia carried out a curriculum review, which led to a special emphasis being placed on environmental education and study at all levels of education within the national curriculum.

Environmental education is included in the elementary school programme as an interdisciplinary area, taught by teachers of general-educational subjects within the framework of environmental days and extra-curricular activities. Elements of environmental

education are included in all three elementary school triads, while in the third triad it can also be a selective subject. In gimnazija (high school), environmental studies are an interdisciplinary area, primarily conducted within the framework of natural science subjects, geography, and sociology; within the compulsory electives, it can also be a selective subject. Environmental studies are also a bridge to connect natural-science and social-science area in a functional whole. The subject environmental studies is an upgrade of the existing subjects dealing with abiotic and biotic nature and human society. These subjects are primarily biology, chemistry, physics, geography, sociology and history, as well as other subjects to a lesser extent. The syllabus for this selective subject is planned to enable high school pupils to find out about new content and to link it to content they study in other subjects. Emphasized is the role of interdisciplinarity in solving environmental problems, since these problems are usually too complex to be controlled only by one field. The basic message of the subject is that environmental problems do not just require technical or technological solutions, but urgently require a change in behaviour. Environmentally-friendly and sustainable development requires responsible decision-making that will not endanger the satisfaction of the needs of future generations.

Gimnazije (high schools) and professional and vocational schools are independently included in various projects (e.g. the healthy schools and eco-schools projects) and in young-research projects. Since 2002 the Ministry of Education and Sport has been implementing a programme known as "Hidden Treasure," which is used to encourage innovative and developmental activities in kindergartens, elementary and secondary schools at the national and international level, with environmental education one of the central thematic areas.

The "Eco-School as a Way of Life" project is part of the European Eco-Schools project, which 58 countries participate in. According to data from the 2008/2009 academic year, 548 institutions were involved in the project (319 elementary schools, 18 school branches, 104 kindergartens, 58 kindergarten units, 17 school and educational centres and 32 secondary schools, including 135.498 pupils and 15.079 teachers). A school that successfully passes the seven prescribed steps and achieves visible results in improving their own environment is awarded an eco-flag. The project promotes environmental protection cooperation between schools in Slovenia and abroad.

Since 1993 Slovenia has been cooperating in the European Healthy Schools Network. Twelve Slovenian schools are included in the European network, while 130 are involved in the Slovenian Healthy Schools Network. Schools that promote health have undertaken to actively contribute to creating a health-friendly environment. They change the way they function in a manner that has a positive impact on the health and life of school pupils, teachers and parents.

The third project that Slovenian schools are involved in is the UNESCO schools project (ASPNet – Associated Schools Project Network). UNESCO schools are committed to four basic themes, one of which is "environmental problems". The "environmental problems theme" allows pupils to link international issues affecting the global environment to their local or national situation. Activities in this field include studying environmental pollution, energy use, the preservation of forests, ocean and atmosphere research, erosion and the preservation of natural resources, impact of global warming, sustainable development, and Agenda 21 etc. A total of 88 Slovenian schools and 2 clubs participated in the project.

Teacher training is very important for the implementation of environmental education, which is a relatively new interdisciplinary field of study (natural and social science teachers), so the Ministry of Education and Sport pays particular attention to this within its annual seminar programme for continual professional training. The Slovenian Education Institute also issues the review "Okoljska vzgoja v šoli" (Environmental Education in Schools). In July 2007, the Ministry of Education and Sport adopted the Guidelines on Education and Schooling for Sustainable Development from pre-school education to university education, the purpose of which is to emphasize the role of education and schooling for sustainable development and to show the possibilities for the implementation of sustainable development in formal, informal and occasional learning. However, this is not only an addition to the existing general education and its purpose isn't only to protect nature – this is a comprehensive, integral and coherent pedagogic process, including the relationship between humans and nature as well as relationships between people. Furthermore, it leads to an understanding of a versatile connection between the natural, economic, social and political system and the interdependence of people living in different parts of the world; namely, it tries to solve the current and future environmental and social issues of humanity in an active and coherent manner.

After 2000 and even more intensively after 2005, the number of university study programmes in the area of environmental protection increased. The undergraduate study programmes include areas of ecology, biological diversity and environmental protection in various universities in Slovenia, among which special attention needs to be devoted to the School of Environmental Sciences in Nova Gorica and the Environmental Protection College in Velenje; the environmental protection study programmes of these two institutions cover all major environmental subject areas, such as the pollution of water, air and ground, ecotoxicology, health ecology, waste management, nature protection, environmental impact assessment, environmental economics and environmental law. The education of specific segments of the environment and environmental protection within a range of different study streams within different subject areas cover climate change, environmental protection, EEU and RES, and also includes an interdisciplinary approach (e.g. the connections between health and ecology, or management and ecology).

Postgraduate studies directly related to the environment are offered at the Nova Gorica Polytechnic, in the form of an interdisciplinary and research-oriented study programme entitled Environmental Science, and also at the University of Ljubljana within the university postgraduate study programme Environmental Protection. The studies are organised to ensure that it provides as wide an overview of the environmental protection issue as possible. Special attention also needs to be devoted to the postgraduate studies known as Ecotechnology at the International postgraduate school of Jožef Stefan.

9.3 Public Information and Awareness

The Ministry of the Environment and Spatial Planning (MOP) plays the most important role in public information and awareness relating to climate change. Below is a presentation of activities by the Ministry (MOP) and ARSO over the period 2004 to 2009:

• **professional consultation**: The Issue of Climate Change and Medium and Long-Term Strategies and Objectives in Reducing Greenhouse Gas Emissions (MOP) and consultation

on Climate Change and Its Importance for Europe Waters (MOP); the MOP is preparing a two-year public tender for the co-financing of work programmes of environmental non-governmental organisations, where funds are also allocated to public information and awareness in the area of the environment, and an annual public tender for the co-financing of information-communication and educational activities of non-governmental organisations on European issues and for the operations of the Environmental Centre. All these tenders also include activities in the area of mitigation of climate change and adaptation to it.

Slovenia is reducing CO_2. The Ministry of the Environment and Spatial Planning has together with the British Embassy in the Republic of Slovenia and the British Council prepared the project »Slovenia Eeducing CO_2«. The purpose of the project is to encourage people to contribute as much as possible to the reduction of CO_2 emissions. The message of the joint campaign is primarily intended for those who can largely act and change the current increasing trend of emissions. »Slovenia Eeducing CO_2« addresses politicians, managers, directors of various institutes and institutions, mayors, farmers, experts, transport and energy managers and others who can influence climate change.

Prior to the presidency of Slovenia over the EU, the MOP had prepared an international round table entitled »Comprehensive Management of Common Underground Water Bodies in South-Eastern Europe« and an international conference entitled »Climate Change: Opportunity for Development«. The three-day event was organised in cooperation with the Global Water Partnership – area Mediterana. During the event, the participating countries were encouraged to cooperate in sustainable use, management and protection of common underground water sources in South-Eastern Europe. Representatives from EU member states, countries from South-Eastern Europe and international organisations, such as the World Bank, UNESCO and others, participated at the event.

The international conference on climate change was organised by the MOP together with the British Embassy in Slovenia. This was one of the largest conferences in the region, opening questions on how to promote the transition to a low-carbon economy and change the environmental challenge into a developmental opportunity. Before the meeting of parties to the UN Framework Convention on Climate Change and the Kyoto Protocol in Bali, Slovenia as the next presiding country of the EU Council had taken over with this international event the initiative to implement European climate and energy objectives. Participants, numerous high representatives of EU member states and countries from South-Eastern Europe as well as managers, were addressed by the president of the Government of the Republic of Slovenia.

RES URE: annual consultation Energy Manager Days, two-year consultation Quality management in planning and installation of wood-fired boiler rooms (2005, 2006), Education of installers of small wood biomass-fired boilers (2004, 2005) etc.

• **publications**: Environmental Indicators (ARSO), Climate Change Day leaflet (ARSO), Take Less, Get More – Tips on Less Harmful Living (MOP), Leaflet on wetland (MOP), Protected areas in Slovenia (MOP); Hydrogen leads to pure energy future (MOP), Environment in your hands – Step forward in environmental management (ARSO), Water quality in Slovenia (ARSO), Common care of sustainable and integral water management (MOP), Where with the old? – publication at the time of the national public awareness campaign (MOP), educational manual for responsible consumption – GUIDE (MOP), You have the power. Show some wisdom. On climate change (MOP), Nature protection system in

Slovenia (MOP), Buy green! (Manual on ecological – environmentally-friendly – public procurement, issued by the European Commission), leaflet Removing Barriers to the Increased Use of Biomass as an Energy Source (MOP);

• **bulletin**: ARSO monthly bulletin (containing reviews of monthly data on meteorology, agrometeorology, hydrology, air pollution and water course and underground water quality) (ARSO), Energy Efficiency (information on novelties in legislation in the EEU and RES, presenting current tenders for financial initiatives and co-financing for EEU and RES measures, and the presentation of different EEU and RES projects, events and news) (the EEU and RES Sector, MOP), The Environment and Spatial Planning (presents current environmental themes) (MOP);

• **web pages**: www.arso.gov.si (meteorological data, climatological data, publications), http://eionet-si.arso.gov. si/Dokumenti/GIS/zrak in http://eionetsi. arso.gov.si/kazalci/index_html?Sku_ naziv=UVOD&tip_skup=1&Sku_id=12 (data and information used to assess air quality, the impact of climate change, defining efficiency indicators for implementing environmental policy, and for the purposes of international data exchange based on ratified international agreements, protocols, and EU legislative obligations), www. aure. si (EEU and RES based web portal – online energy library, information on tenders, events, etc.), www.gov.si/mop (Ministry of the Environment and Spatial Planning website); Youth Xchange – educational manual for responsible consumption – GUIDE (MOP) http://www.youthxchange.net/main/slovenia.asp

events: European Mobility Week and European Car Free Day (The objective of the initiative is to inform the public of the consequences of the excess use of cars and road transport in general, and changes in mobility habits. The campaign warns of climate change and of everything that creates a »climate« of cities: living quality, air quality, noise, traffic safety, quality of public surfaces, social integration of the population and general atmosphere in cities. The key players in this campaign are the municipalities, since they know best the traffic problems in individual cities and can also define traffic regimes in cities in the fastest possible manner, which also contributes to permanent mobility. Each year, from 20 to 26 municipalities with a population of app. 500.000 have been participating. The MOP prepares for them and for the wider public a web page as well as awareness material. In recent years, app. 15 radio stations have participated, also carrying out a contest four times. In cooperation with the SŽ, the MOP prepares a contest for the pupils of elementary schools. Students fill out a questionnaire on the travelling habits of families, the harmful effects of transport and proposals on alternative transport habits. On average, 70 schools with 400 classes participate. 13 classes are selected for a free trip across Slovenia by the SŽ, while all participants get a 75 % discount for the same ride. Non-governmental organisations (for instance, Focus) participate as well, conducting public awareness-educational activities. In recent years, politicians have also joined the campaign.

RES URE: LesEnDemo events and presentations (The objective is to expand and popularise the obtainment, use and marketing of wood biomass for energy purposes).

The MOP and its EEU and RES Sector also issued tenders for co-financing for projects to promote environmental protection and spatial planning, to cofinance information, awareness-raising and promotional activities for the EEU and RES and co-financing activities by environmental non-governmental organisations. NGOs have an important role to play in public information and awareness. Some of the most active ones are: Fokus (Sustainable

Development project; Change Your Habits, Not the Climate - web portal on climate change: http://www. focus-go.org/index.php?node=15; One tonne heavy challenge; Also Me, Sustainable Energy for Sustainable Development, Big Ask, Development with Climate Orotection? Yes, possible!, All in one, one for all!, Public Transport is Cool« Bye, bye stand-by! etc.), Umanotera (Rituali eco office; Calculate your own CO_2 print; Elections 2008 – Change the Climate; Plan B – Manifest for Elections 2008, Mirror to the Government 2006 etc.), Institute for Sustainable Development (projects in the area of organic farming), Slovenian e forum (Slovenia Reducing CO_2, etc.).

9.4 Consulting

Since 1993, the project »Energy Consulting for Citizens – ENSVET« has been carried out continually in Slovenia, intended for consulting and the increase of information and awareness of citizens for rational energy use and the use of RES. The project incorporates a network of 39 consulting offices. So far, more than 200 consultants have been educated for consulting work within the project. In 2008, around 65 consultants have actual authorisation for work in the energy consulting network ENSVET. The project is entirely financed by the Ministry of the Environment and Spatial Planning, so that consulting for citizens is free-of-charge. The coordinator of the project is the Construction Institute of the ZRMK. In consulting offices, citizens are provided with professional, free and independent consulting on the selection of heating systems and heating equipment, the replacement of heating equipment, reduction of fuel consumption, selection of appropriate fuel, insulation of buildings, selection of appropriate windows and glazing, restoration of buildings with the purpose of reducing energy use, use of efficient household equipment and on other issues referring to energy consumption.

Operations of the consulting network ENSVET are also supplemented by the informal association of consultants »LesEnSvet« operating within three institutions: the Slovenian Forest Service, the Chamber of Agriculture and Forestry of Slovenia and the Construction Institute of the ZRMK. Consulting of consultants in the LesEnSvet network includes the transmission of information on wood biomass potentials (wood, wood residues, other wood biomass), modern technologies of wood biomass production (logging, bringing, transport), modern technologies of wood biomass processing (choppers, processors for log production, drying, storage), modern technologies of wood biomass use (boilers for central heating, heating of sanitary water).

9.5 Non-governmental Organisations

Although around 160 environmental non-governmental organisations (NGO) operate in Slovenia (around 60% at the local level), only a small number focus in detail on climate and / or related themes (energy, transport, agriculture, etc.). The majority of NGOs direct their operations to sustainable development, and only rarely to nature protection. NGOs that systematically address the climate issue include Slovenski E Forum, Fokus (the association for sustainable development), and Umanotera (The Slovenian Foundation for Sustainable Development). In 2007, the indicated NGOs have together with CIPRA Slovenije and the Institute for Sustainable Development founded with the financial assistance of the MOP the Environmental Centre as the framework for operations of environmental non-governmental organisations. The Environmental Centre has become the centre for the integration of

interested members of the public, while enabling access for the wider public to information and publications of environmental protection and sustainable development. Simultaneously with better organisation and cooperation of environmental non-governmental organisations, the Environmental Centre has been increasing its importance in decision-making processes. The Environmental Centre also provides the basic infrastructure and assistance to non-established or newly-established environmental non-governmental organisations and civil initiatives.

The Government NGO Cooperation Strategy includes a cooperation programme involving both sides. The Government used this document to emphasise the importance of NGOs and to establish a lasting foundation for resolving problems appearing in their work and development. It is important to point out that NGOs have representatives in the Slovenian Climate Change Committee, Project Steering Committee »Removing Barriers to the Increased Use of Biomass as an Energy Source«, Sustainable Development Council; moreover, one NGO representative has been participating for several years as a member of the national delegation in negotiations within the framework of the UNFCCC, which points to an increasing participation of NGOs in decision-making processes.

ANNEXES

Annex A: Abbreviations and Units of Measurement

Abbreviations:

AC	Motorway
AGEN-RS	Energy Agency of the Republic of Slovenia
ALTENER	EU programme that exclusively promotes renewable energy sources ALTENER was concluded in 1997, ALTENER II in 2002.
ARSO	Environmental Agency of the Republic of Slovenia
ARRS	Slovenian Research Agency
BAT	Best Available Techniques
BČN	Biological waste water treatment plant
BDP	Gross Domestic Product (GDP)
BIOO	Bio-degradable municipal waste
BREF BAT	reference document (»Bat reference«)
CFC	Chlorofluorocarbons
CH_4	Methane
CLARITY	Climate Action Reaching and Teaching the Young
CLRTAP	Convention on Long-Range Transboundary Air Pollution
CO	Carbon monoxide
COGEN	Association for the Promotion of Cogeneration
COP	Conference of the Parties (to the United Nations Framework Convention on Climate Change)
CORINAIR	Coordination d'information enviromentale project partiel air
COST	European Co–operation in the field of Scientific and Technical Research
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2 eq	CO_2 equivalent (greenhouse gas emissions expressed in a common unit; calculations are based on the global warming potential (GWP) of specific gases prepared by the IPCC. The following values must be used in line with UN FCCC instructions to prepare national reports and green house gas emission inventories: GWP CO_2 1, GWP CH_4 21, GWP N_2O 310, GWP HFC134a 3800, GWP CF_4 6500, GWP C_2F_6 9200
CRF	Common Reporting Format
DOLB	Wood biomass district heating system
DSM	Demand Side Management – Execution of EEU programmes for consumers by energy supply companies
EIMV	Milan Vidmar Electrical Power Research Institute
EIE	Intelligent Energy for Europe programme
EKOSKLAD	Ecological fund, Slovenian Environmental Public Fund
EMAS	Environmental Management Audit Scheme
EMEP	European Monitoring and Evaluation Programme
ENSVET	Citizens' energy advice
EPBD	European Directive on Energy Performance of Buildings (2002/91/EC)

ERM-2	European Exchange Rate Mechanism
EU	European Union
EUREKA	Europe-wide network for industrial research and development
F–Gases	Hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF_6)
FEC	Final Energy Consumption
FOD	First order decay method for calculating CH_4 emissions from waste
GAW	Global Atmosphere Watch
GCM	Global Circulation Model, see also MSC
GCOS	Global Climate Observing System
GDP	Gross Domestic Product, see also BDP
GEF	Global Environment Facility
GHG	Greenhouse gases, see also TGP
GOCC	Government Office of Climate Change
GPCC	Global Precipitation Climatology Centre
GPG 2000	Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, IPCC 2000
GTN–G	Global Terrestrial Network–Glaciers
GZS	Slovenian Chamber of Commerce and Industry
HC	Highway / high-speed road
HE	Hydro power plant
HFC	Hydrofluorocarbons
HSE	Holding Slovenske elektrarne – Slovenian Power Plants Holding company
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
JE	Nuclear power plant
MAP	Mesoscale Alpine Programme
MAMA	Mediterranean network to Assess and upgrade Monitoring and forecasting Activity in the region
MBP	Marine Biology Station
MedGOOS	Mediterranean Global Ocean Observing System
MF	Ministry of Finance
MFSTEP	Mediterranean Forecasting System Toward Environmental Predictions
ME	Ministry of the Economy
mHE	Small hydro power plant
MJU	Ministry of Public Administration
MK	Ministry of Culture
MKGP	Ministry of Agriculture, Forestry and Food
MOP	Ministry of the Environment and Spatial Planning
MVZT	Ministry of Higher Education, Science and Technology
MT	Ministry of Transport
MSC	Global circulation model – see GCM
MŠŠ	Ministry of Education and Sport
NEK	Krško Nuclear Power Plant
NEP	National Energy Programme
NH_3	Ammonium hydroxide
NIB	National Institute of Biology
NMVOC	Non Methane Volatile Organic Compounds
NOx	Nitrogen oxides
NVO	Nongovernmental organisations, i.e. NGOs

N_2O	Nitrous oxide
OVE	Renewable energy sources, i.e. RES
OP-TGP	Operational Programme for Limiting Greenhouse Gas Emissions (July 2004)
OP-TGP1	Operational Programme for Limiting Greenhouse Gas Emissions until 2012 (July 2009)
OPET	Organisations for the Promotion of Energy Technologies
OZN	United Nations Organisation, i.e. UN
PAH	Polycyclic aromatic hydrocarbons
PFC	Perfluorocarbons (CF_4 and C_2F_6)
PM	Dust particles
POP	Population
POPs	Persistent organic pollutants
REALISE	Renewable Energy and Liberalisation in Selected Electricity markets
RECS	Renewable Energy Certificate System
ReNEP	Resolution on the National Energy Programme (OGRS, No 57/2004)
ReNPVO	Resolution on the National Energy Programme (OGRS, No 2/2006)
RRA RUL	Regional Development Agency of the Ljubljana urban region
RRD	Research and Development
RS	Republic of Slovenia
SAVE	EU energy efficiency programme
SEP	Central European Initiative, i.e. CEI
SF_6	Sulphur hexafluoride
SKOP	Slovenian Agricultural-Environmental Programme (SAEP)
SLEG	Statistical Yearbook of Energy Economics
SMO	World Meteorological Organization, see also WMO
SO2	Sulphur dioxide
SURS	Statistical Office of the Republic of Slovenia
SVREZ	Government Office for Development and European Affairs
SŽ	Slovenian Railways (Slovenske železnice)
TE	Thermo power plants
TE–TOL	Ljubljana heat and power plant
TEŠ	Šoštanj thermo power plant
TET	Trbovlje thermo power plant
TGP	Greenhouse gases, see also GHG
TOE	Tonne of oil equivalent
TPES	Total Primary Energy Supply
UMAR	Institute of Macroeconomic Analysis and Development (aka IMAD)
URE	Energy efficiency
WGMS	World Glacier Monitoring Service
WMO	World Meteorological Organization
WCRP	World Climate Research Programme
WWW	World Weather Watch
ZGS	Slovenian Forest Service
ZN	United Nations - UN
ZRC-SAZU	Scientific Research Centre of the Slovenian Academy of Sciences and Arts (SRC SASA)
ZRMK	Institute for Material and Structure Research

Units of measurement:

k… kilo (10^3)
M… Mega (10^6)
G… Giga (10^9)
T… Tera (10^{12})
P… Peta (10^{15})
g... gram
t... tonne
J... joule
Ha... hectare
…/a... per annum

Annex B: GHG Inventories

Table B-1: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1986

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1986
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**14,703.3088533**	**2,384.0203833**	**1,376.4974432**	**NA,NO**	**276.2911200**	**10.2411500**	**18,750.3589499**
1. Energy	**15,294.7477521**	**597.9601180**	**176.3115547**				**16,069.0194247**
A. Fuel Combustion (Sectoral Approach)	15,174.5094778	182.4264889	176.3115547				15,533.2475214
1. Energy Industries	6700.7081384	1.8896834	26.4963213				6729.0941431
2. Manufacturing Industries and Construction	4352.1081220	10.8468426	42.0518654				4405.0068301
3. Transport	1982.6152158	18.2978910	32.3519616				2033.2650683
4. Other Sectors	2139.0780016	151.3920718	75.4114065				2365.8814799
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	120.2382743	415.5336291	NO				535.7719033
1. Solid Fuels	120.2382743	358.9064382	NO				479.1447124
2. Oil and Natural Gas	NE,NO	56.6271909	NO				56.6271909
2. Industrial Processes	**997.8144346**	**3.7120230**	**NA,NO**	**NA,NO**	**276.2911200**	**10.2411500**	**1288.0587276**
A. Mineral Products	765.6425957	NA	NA				765.6425957
B. Chemical Industry	44.9851882	3.7120230	NA,NO	NA	NA	NA	48.6972112
C. Metal Production	187.1866507	NA,NO	NA	NA	276.2911200	NA,NO	463.4777707
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	10.2411500	10.2411500
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**81.9032400**				**81.9032400**
4. Agriculture		**1274.8707953**	**1059.4248880**				**2334.2956833**
A. Enteric Fermentation		765.0860132					765.0860132
B. Manure Management		509.7847822	268.2949231				778.0797053
C. Rice Cultivation		NO					NO

D. Agricultural Soils[3]		NO	791.1299648				791.1299648
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-1589.2533333**	**NA,NE,NO**	**IE,NA,NE,NO**				**-1589.2533333**
A. Forest Land	-1589.2533333	NE,NO	IE,NE,NO				-1589.2533333
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**507.4774470**	**58.8577606**				**566.3352076**
A. Solid Waste Disposal on Land	NA,NE,NO	298.8007091					298.8007091
B. Waste-water Handling		208.6767379	58.8577606				267.5344985
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	97.4918516	0.0286340	0.8453839				98.3658695
Aviation	97.4918516	0.0286340	0.8453839				98.3658695
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2253.7385220**						**2253.7385220**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	20,339.6122832
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	18,750.3589499

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-2: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1987

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1987
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**13,722.8317123**	**2368.3897968**	**1394.0609170**	**NA.NO**	**317.8728000**	**10.2411500**	**17,813.3963761**
1. Energy	**14,757.1896731**	**576.7890954**	**170.7028545**				**15,504.6816230**
A. Fuel Combustion (Sectoral Approach)	14,643.8792208	176.1666611	170.7028545				14,990.7487363
1. Energy Industries	6349.3143523	1.9678623	27.1855863				6378.4678009
2. Manufacturing Industries and Construction	3856.8231225	9.8184768	35.6190198				3902.2606190
3. Transport	2267.4539925	21.1061249	35.5172713				2324.0773886
4. Other Sectors	2170.2877536	143.2741970	72.3809771				2385.9429278
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	113.3104523	400.6224344	NO				513.9328866
1. Solid Fuels	113.3104523	340.9675716	NO				454.2780239
2. Oil and Natural Gas	NE,NO	59.6548628	NO				59.6548628
2. Industrial Processes	**981.9889755**	**3.6471939**	**NA.NO**	**NA.NO**	**317.8728000**	**10.2411500**	**1,313.7501194**
A. Mineral Products	728.4262769	NA	NA				728.4262769
B. Chemical Industry	53.0547886	3.6471939	NA.NO	NA	NA	NA	56.7019825
C. Metal Production	200.5079100	NA,NO	NA	NA	317.8728000	NA.NO	518.3807100
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA.NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	10.2411500	10.2411500
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**72.2774300**				**72.2774300**
4. Agriculture		**1270.7579165**	**1093.2165747**				**2363.9744912**
A. Enteric Fermentation		752.1388054					752.1388054
B. Manure Management		518.6191111	263.1502940				781.7694051
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	830.0662807				830.0662807
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-2016.3469363**	**NA,NE,NO**	**IE,NA,NE,NO**				**-2016.3469363**
A. Forest Land	-2016.3469363	NE,NO	IE,NE,NO				-2016.3469363
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**517.1955909**	**57.8640579**				**575.0596488**
A. Solid Waste Disposal on Land	NA,NE,NO	310.5948487					310.5948487
B. Waste-water Handling		206.6007422	57.8640579				264.4648001
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	89.0518200	0.0261551	0.7721976				89.8501727
Aviation	89.0518200	0.0261551	0.7721976				89.8501727
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2212.2394305**						**2212.2394305**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	19,829.7433124
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	17,813.3963761

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-3: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1988

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1988
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**13,281.7255857**	**2344.5788723**	**1336.1321221**	**NA,NO**	**219.6320000**	**10.2411500**	**17,192.3097302**
1. Energy	**14,407.1686659**	**557.7249483**	**163.7127207**				**15,128.6063349**
A. Fuel Combustion (Sectoral Approach)	14,294.6705101	158.5282928	163.7127207				14,616.9115236
1. Energy Industries	6432.5946240	1.8012901	26.5072471				6460.9031612
2. Manufacturing Industries and Construction	3633.4326798	9.2271768	31.5909100				3674.2507665
3. Transport	2443.7357855	22.1088143	37.7232483				2503.5678481
4. Other Sectors	1784.9074208	125.3910116	67.8913153				1978.1897477
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	112.4981558	399.1966555	NO				511.6948113
1. Solid Fuels	112.4981558	339.1272826	NO				451.6254384
2. Oil and Natural Gas	NE.NO	60.0693729	NO				60.0693729
2. Industrial Processes	**1052.7829435**	**6.4778028**	**NA,NO**	**NA,NO**	**219.6320000**	**10.2411500**	**1289.1338963**
A. Mineral Products	773.4400542	NA	NA				773.4400542
B. Chemical Industry	54.8300992	6.4778028	NA,NO	NA	NA	NA	61.3079020
C. Metal Production	224.5127900	NA,NO	NA	NA	219.6320000	NA.NO	444.1447900
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	10.2411500	10.2411500
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**62.6516200**				**62.6516200**
4. Agriculture		**1253.8618516**	**1052.5764902**				**2306.4383419**
A. Enteric Fermentation		747.6531737					747.6531737
B. Manure Management		506.2086779	261.2234451				767.4321230
C. Rice Cultivation		NO					NO
D. Agricultural Soils [3]		NO	791.3530451				791.3530451
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-2178.2260236**	**NA,NE,NO**	**IE,NA,NE,NO**				**-2178.2260236**
A. Forest Land	-2178.2260236	NE,NO	IE,NE,NO				-2178.2260236
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**526.5142695**	**57.1912913**				**583.7055608**
A. Solid Waste Disposal on Land	NA,NE,NO	322.2953021					322.2953021
B. Waste-water Handling		204.2189674	57.1912913				261.4102587
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	84.1555000	0.0247170	0.7297400				84.9099570
Aviation	84.1555000	0.0247170	0.7297400				84.9099570
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2170.7403390**						**2170.7403390**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							19,370.5357538
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							17,192.3097302

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-4: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1989

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1989
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**12,725.6083563**	**2344.4237095**	**1277.8271019**	**NA,NO**	**249.8314000**	**11.4648300**	**16,609.1553977**
1. Energy	**14,383.9792705**	**558.6847687**	**159.0919229**				**15,101.7559621**
A. Fuel Combustion (Sectoral Approach)	14,259.8338835	158.3897524	159.0919229				14,577.3155589
1. Energy Industries	6536.9664939	1.8803415	27.5491919				6566.3960273
2. Manufacturing Industries and Construction	3409.4370229	8.6875445	28.3162755				3446.4408429
3. Transport	2474.7145076	22.5732857	37.8947619				2535.1825552
4. Other Sectors	1838.7158591	125.2485807	65.3316936				2029.2961334
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	124.1453870	400.2950163	NO				524.4404033
1. Solid Fuels	124.1453870	341.7935570	NO				465.9389440
2. Oil and Natural Gas	NE.NO	58.5014593	NO				58.5014593
2. Industrial Processes	**1014.8508634**	**5.4033357**	**NA,NO**	**NA,NO**	**249.8314000**	**11.4648300**	**1,281.5504291**
A. Mineral Products	726.0824625	NA	NA				726.0824625
B. Chemical Industry	49.4581009	5.4033357	NA,NO	NA	NA	NA	54.8614366
C. Metal Production	239.3103000	NA,NO	NA	NA	249.8314000	NA,NO	489.1417000
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	11.4648300	11.4648300
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**53.0258100**				**53.0258100**
4. Agriculture		**1240.8596566**	**1008.4597928**				**2249.3194493**
A. Enteric Fermentation		744.3132118					744.3132118
B. Manure Management		496.5464447	259.7679166				756.3143613
C. Rice Cultivation		NO					NO
D. Agricultural Soils [3]		NO	748.6918762				748.6918762
E. Prescribed Burning of Savannas		NO	NO				NO

F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-2673.2217776**	**NA,NE,NO**	**IE,NA,NE,NO**				**-2673.2217776**
A. Forest Land	-2673.2217776	NE,NO	IE,NE,NO				-2673.2217776
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**539.4759485**	**57.2495762**				**596.7255247**
A. Solid Waste Disposal on Land	NA,NE,NO	336.3028711					336.3028711
B. Waste-water Handling		203.1730774	57.2495762				260.4226536
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	81.0953000	0.0238182	0.7032040				81.8223222
Aviation	81.0953000	0.0238182	0.7032040				81.8223222
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2129.2412475**						**2129.2412475**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	19,282.3771753
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	16,609.1553977

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-5: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1990

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1990
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**11,558.1753346**	**2303.5938601**	**1256.1776903**	**NA,NO**	**257.4443200**	**10.3032900**	**15,385.6944950**
1. Energy	**13,722.8787764**	**518.0499791**	**154.8838291**				**14,395.8125846**
A. Fuel Combustion (Sectoral Approach)	13,624.4988921	157.2970092	154.8838291				13,936.6797304
1. Energy Industries	6238.7428790	1.9319952	24.8084568				6265.4833310
2. Manufacturing Industries and Construction	3085.3689025	8.0410399	25.9924836				3119.4024260
3. Transport	2676.8249524	23.3462051	42.0588822				2742.2300397
4. Other Sectors	1623.5621582	123.9777690	62.0240065				1809.5639337
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	98.3798843	360.7529699	NO				459.1328542
1. Solid Fuels	98.3798843	302.8078005	NO				401.1876847
2. Oil and Natural Gas	NE,NO	57.9451694	NO				57.9451694
2. Industrial Processes	**1021.0432249**	**3.3650946**	**NA,NO**	**NA,NO**	**257.4443200**	**10.3032900**	**1292.1559295**
A. Mineral Products	699.6032132	NA	NA				699.6032132
B. Chemical Industry	36.7287947	3.3650946	NA,NO	NA	NA	NA	40.0938893
C. Metal Production	284.7112170	NA,NO	NA	NA	257.4443200	NA,NO	542.1555370
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	10.3032900	10.3032900
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**43.4000000**				**43.4000000**
4. Agriculture		**1244.4029780**	**998.3229943**				**2242.7259723**
A. Enteric Fermentation		730.9000161					730.9000161
B. Manure Management		513.5029619	252.7909231				766.2938850
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	745.5320712				745.5320712
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-3185.7466667**	**NA,NE,NO**	**IE,NA,NE,NO**				**-3185.7466667**
A. Forest Land	-3185.7466667	NE,NO	IE,NE,NO				-3185.7466667
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**537.7758083**	**59.5708669**				**597.3466752**
A. Solid Waste Disposal on Land	NA,NE,NO	345.1099409					345.1099409
B. Waste-water Handling		192.6658675	59.5708669				252.2367344
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	79.2591800	0.0232789	0.6872824				79.9697413
Aviation	79.2591800	0.0232789	0.6872824				79.9697413
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2087.7421560**						**2087.7421560**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							18,571.4411617
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							15,385.6944950

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-6: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1991

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1991
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**9839.2134669**	**2189.2684276**	**1174.1038548**	**NA,NO**	**302.5801800**	**10.1097000**	**13,515.2756293**
1. Energy	**12,901.8872411**	**503.7877934**	**148.4817567**				**13,554.1567913**
A. Fuel Combustion (Sectoral Approach)	12,811.1265004	161.9587619	148.4817567				13,121.5670190
1. Energy Industries	5321.3335154	1.5407362	22.3788641				5345.2531157
2. Manufacturing Industries and Construction	3029.0037882	6.7951177	21.8254400				3057.6243459
3. Transport	2527.2573020	22.5746714	40.5897074				2590.4216808
4. Other Sectors	1933.5318948	131.0482365	63.6877453				2128.2678766
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	90.7607408	341.8290315	NO				432.5897722
1. Solid Fuels	90.7607408	282.5014418	NO				373.2621826
2. Oil and Natural Gas	NE,NO	59.3275897	NO				59.3275897
2. Industrial Processes	**861.2728924**	**3.6623790**	**NA,NO**	**NA,NO**	**302.5801800**	**10.1097000**	**1177.6251514**
A. Mineral Products	585.8379021	NA	NA				585.8379021
B. Chemical Industry	27.9754204	3.6623790	NA,NO	NA	NA	NA	31.6377994
C. Metal Production	247.4595700	NA,NO	NA	NA	302.5801800	NA.NO	550.0397500
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	10.1097000	10.1097000
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**37.2000000**				**37.2000000**
4. Agriculture		**1152.3032575**	**932.4646423**				**2084.7678998**
A. Enteric Fermentation		678.6746585					678.6746585
B. Manure Management		473.6285990	239.1777197				712.8063187
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	693.2869226				693.2869226
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-3923.9466667**	**NA,NE,NO**	**IE,NA,NE,NO**				**-3923.9466667**
A. Forest Land	-3923.9466667	NE,NO	IE,NE,NO				-3923.9466667
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**529.5149977**	**55.9574557**				**585.4724535**
A. Solid Waste Disposal on Land	NA,NE,NO	350.5330065					350.5330065
B. Waste-water Handling		178.9819912	55.9574557				234.9394470
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	27.5418000	0.0080892	0.2388240				27.7887132
Aviation	27.5418000	0.0080892	0.2388240				27.7887132
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2030.1414170**						**2030.1414170**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							17,439.2222960
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							13,515.2756293

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-7: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1992

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1992
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**9738.3589613**	**2267.6727487**	**1269.4424144**	**NA,NO**	**243.0198400**	**10.1336000**	**13,528.6275643**
1. Energy	**12,909.1171560**	**526.7425502**	**142.8555151**				**13,578.7152212**
A. Fuel Combustion (Sectoral Approach)	12,791.4695214	156.5441404	142.8555151				13,090.8691769
1. Energy Industries	5840.1444515	1.5603891	24.8699890				5866.5748296
2. Manufacturing Industries and Construction	2637.5957839	5.9855027	19.2409861				2662.8222727
3. Transport	2608.9584174	24.3916781	40.2045508				2673.5546462
4. Other Sectors	1704.7708687	124.6065704	58.5399892				1887.9174284
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	117.6476345	370.1984097	NO				487.8460443
1. Solid Fuels	117.6476345	306.0340374	NO				423.6816719
2. Oil and Natural Gas	NE,NO	64.1643723	NO				64.1643723
2. Industrial Processes	**770.2384720**	**0.1919232**	**NA,NO**	**NA,NO**	**243.0198400**	**10.1336000**	**1023.5838352**
A. Mineral Products	508.6087406	NA	NA				508.6087406
B. Chemical Industry	23.0515613	0.1919232	NA,NO	NA	NA	NA	23.2434845
C. Metal Production	238.5781700	NA,NO	NA	NA	243.0198400	NA.NO	481.5980100
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NO	NA,NO	10.1336000	10.1336000
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**27.9000000**				**27.9000000**
4. Agriculture		**1220.1589461**	**1053.9836746**				**2274.1426206**
A. Enteric Fermentation		698.9162242					698.9162242
B. Manure Management		521.2427219	226.9426495				748.1853713
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	827.0410251				827.0410251

E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-3940.9966667**	**NA,NE,NO**	**IE,NA,NE,NO**				**-3940.9966667**
A. Forest Land	-3940.9966667	NE,NO	IE,NE,NO				-3940.9966667
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**520.5793293**	**44.7032247**				**565.2825540**
A. Solid Waste Disposal on Land	NA,NE,NO	358.1888264					358.1888264
B. Waste-water Handling		162.3905029	44.7032247				207.0937276
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	34.2742400	0.0100666	0.2972032				34.5815098
Aviation	34.2742400	0.0100666	0.2972032				34.5815098
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2040.9625502**						**2040.9625502**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							17,69.6242310
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							13,528.6275643

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-8: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1993

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1993
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**9626.2299636**	**2191.5680312**	**1171.6876805**	**NA,NE,NO**	**251.1373200**	**11.0489700**	**13,251.6719653**
1. Energy	**13,413.0030189**	**498.9430989**	**148.5578020**				**14,060.5039198**
A. Fuel Combustion (Sectoral Approach)	13,307.3213408	157.5988763	148.5578020				13,613.4780192
1. Energy Industries	5620.1366861	1.4827186	23.7924050				5645.4118097
2. Manufacturing Industries and Construction	2480.1209181	5.7484980	17.4393886				2503.3088047
3. Transport	3013.4214993	29.5119830	52.3254188				3095.2589011
4. Other Sectors	2193.6422373	120.8556767	55.0005896				2369.4985036
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	105.6816781	341.3442226	NO				447.0259007
1. Solid Fuels	105.6816781	280.9266289	NO				386.6083070
2. Oil and Natural Gas	NE,NO	60.4175937	NO				60.4175937
2. Industrial Processes	**636.1969447**	**0.6882246**	**NA,NO**	**NA,NE,NO**	**251.1373200**	**11.0489700**	**899.0714593**
A. Mineral Products	408.5609260	NA	NA				408.5609260
B. Chemical Industry	21.8839787	0.6882246	NA,NO	NA	NA	NA	22.5722033
C. Metal Production	205.7520400	NA,NO	NA	NA	251.1373200	NA,NO	456.8893600
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NE,NO	NA,NO	11,0489700	11.0489700
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**19.6815900**				**19.6815900**
4. Agriculture		**1175,5859677**	**952.9072099**				**2128.4931776**
A. Enteric Fermentation		667.5061915					667.5061915
B. Manure Management		508.0797762	201.6811884				709.7609646
C. Rice Cultivation		NO					NO

D. Agricultural Soils[3]		NO	751.2260216				751.2260216
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-4422.9700000**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4422.9700000**
A. Forest Land	-4422.9700000	NE,NO	IE,NE,NO				-4422.9700000
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**516.3507400**	**50.5410785**				**566.8918185**
A. Solid Waste Disposal on Land	NA,NE,NO	365.7590659					365.7590659
B. Waste-water Handling		150.5916741	50.5410785				201.1327526
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	48.3511600	0.0142010	0.4192688				48.7846298
Aviation	48.3511600	0.0142010	0.4192688				48.7846298
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2028.1546888**						**2028.1546888**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	17,674.6419653
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	13,251.6719653

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-9: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1994

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1994
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**9787.9154103**	**2175.6732704**	**1199.0389611**	**NA,NE,NO**	**281.6038400**	**11.3596700**	**13,455.5911518**
1. Energy	**13,398.6581475**	**480.7630564**	**167.1718905**				**14,046.5930944**
A. Fuel Combustion (Sectoral Approach)	13,297.0368623	155.1255434	167.1718905				13,619.3342963
1. Energy Industries	5230.6058517	1.4948669	23.1707305				5255.2714491
2. Manufacturing Industries and Construction	2640.3145377	5.8767610	19.5184772				2665.7097759
3. Transport	3324.4964843	32.0937682	65.4101106				3,422.0003631
4. Other Sectors	2101.6199886	115.6601473	59.0725722				2,276.3527082
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	101.6212852	325.6375129	NO				427.2587981
1. Solid Fuels	101.6212852	268.1551070	NO				369.7763922
2. Oil and Natural Gas	NE.NO	57.4824059	NO				57.4824059
2. Industrial Processes	**786.5239294**	**2.5922610**	**NA,NO**	**NA,NE,NO**	**281.6038400**	**11.3596700**	**1082.0797004**
A. Mineral Products	524.6558863	NA	NA				524.6558863
B. Chemical Industry	31.7379332	2.5922610	NA,NO	NA	NA	NA	34.3301942
C. Metal Production	230.1301100	NA,NO	NA	NA	281.6038400	NA,NO	511.7339500
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				NA,NE,NO	NA,NO	11.3596700	11.3596700
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**18.8349800**				**18.8349800**
4. Agriculture		**1173.4107914**	**959.8291102**				**2133.2399015**
A. Enteric Fermentation		666.7967971					666.7967971
B. Manure Management		506.6139943	195.1523841				701.7663784
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	764.6767261				764.6767261
E. Prescribed Burning of Savannas		NO	NO				NO

F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO
G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-4397.2666667**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4397.2666667**
A. Forest Land	-4397.2666667	NE,NO	IE,NE,NO				-4397.2666667
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**518.9071617**	**53.2029805**				**572.1101421**
A. Solid Waste Disposal on Land	NA,NE,NO	373.3147093					373.3147093
B. Waste-water Handling		145.5924524	53.2029805				198.7954328
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	53.8595200	0.0158189	0.4670336				54.3423725
Aviation	53.8595200	0.0158189	0.4670336				54.3423725
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2055.1872624**						**2055.1872624**

Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	17,852.8578185
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	13,455.5911518

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-10: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1995

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1995
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [(1)]**	**CH_4**	**N_2O**	**HFCs [(2)]**	**PFCs [(2)]**	**SF_6 [(2)]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**10,101.8053863**	**2167.3443182**	**1213.6697215**	**28.9572790**	**285.6848400**	**11.5221900**	**13,808.9837350**
1. Energy	**14,227.6399541**	**483.5356406**	**182.5939816**				**14,893.7695763**
A. Fuel Combustion (Sectoral Approach)	14,111.4482333	156.9347861	182.5939816				14,450.9770010
1. Energy Industries	5601.0403380	1.5775412	23.8941373				5626.5120164
2. Manufacturing Industries and Construction	2586.8852431	5.6165490	22.9579468				2615.4597389
3. Transport	3653.1788146	35.8530206	81.5277647				3770.5595999
4. Other Sectors	2270.3438377	113.8876753	54.2141329				2438.4456458
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	116.1917208	326.6008546	NO				442.7925753
1. Solid Fuels	116.1917208	272.0731377	NO				388.2648585
2. Oil and Natural Gas	NE,NO	54.5277169	NO				54.5277169
2. Industrial Processes	**779.4066808**	**3.8990700**	**NA,NO**	**28.9572790**	**285.6848400**	**11.5221900**	**1109.4700598**
A. Mineral Products	541.7681108	NA	NA				541.7681108
B. Chemical Industry	26.8597100	3.8990700	NA,NO	NA	NA	NA	30.7587800
C. Metal Production	210.7788600	NA,NO	NA	NA	285.6848400	NA.NO	496.4637000
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA.NO
F. Consumption of Halocarbons and SF_6 [(2)]				28.9572790	NA,NO	11.5221900	40.4794690
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**17.2508800**				**17.2508800**
4. Agriculture		**1158.5746547**	**958.7888962**				**2117.3635509**
A. Enteric Fermentation		692.9603682					692.9603682
B. Manure Management		465.6142865	198.9409510				664.5552375
C. Rice Cultivation		NO					NO
D. Agricultural Soils[(3)]		NO	759.8479452				759.8479452
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-4905.2412485**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4905.2412485**
A. Forest Land	-4905.2412485	NE,NO	IE,NE,NO				-4905.2412485
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**521.3349528**	**55.0359636**				**576.3709165**
A. Solid Waste Disposal on Land	NA,NE,NO	376.4686175					376.4686175
B. Waste-water Handling		144.8663354	55.0359636				199.9022990
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	57.5317600	0.0168974	0.4988768				58.0475342
Aviation	57.5317600	0.0168974	0.4988768				58.0475342
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2028.9493801**						**2028.9493801**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							18,714.2249835
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							13,808.9837350

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-11: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1996

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1996
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,889.6459281**	**2113.2639872**	**1219.5511192**	**27.2930450**	**239.5324400**	**11.8257200**	**14,501.1122396**
1. Energy	**14,900.1276944**	**476.3221542**	**203.1457453**				**15,579.5955939**
A. Fuel Combustion (Sectoral Approach)	14,786.8149396	163.7827166	203.1457453				15,153.7434016
1. Energy Industries	5213.8308051	1.3870555	21.7472121				5236.9650727
2. Manufacturing Industries and Construction	2449.1858164	5.9361402	23.8105169				2478.9324736
3. Transport	4231.2607730	42.1815879	103.3416879				4376.7840488
4. Other Sectors	2892.5375451	114.2779330	54.2463284				3061.0618065
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	113.3127548	312.5394375	NO				425.8521923
1. Solid Fuels	113.3127548	259.8025359	NO				373.1152907
2. Oil and Natural Gas	NE.NO	52.7369016	NO				52.7369016
2. Industrial Processes	**784.9383045**	**3.4316940**	**NA,NO**	**27.2930450**	**239.5324400**	**11.8257200**	**1067.0212035**
A. Mineral Products	562.8335945	NA	NA				562.8335945
B. Chemical Industry	26.3818400	3.4316940	NA,NO	NA	NA	NA	29.8135340
C. Metal Production	195.7228700	NA,NO	NA	NA	239.5324400	NA,NO	435.2553100
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				27.2930450	NA,NO	11.8257200	39.1187650
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**18.6992000**				**18.6992000**
4. Agriculture		**1109.3901867**	**939.8213648**				**2049.2115514**
A. Enteric Fermentation		667.2145670					667.2145670
B. Manure Management		442.1756197	193.6782194				635.8538391
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	746.1431454				746.1431454
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-4795.4200708**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4795.4200708**
A. Forest Land	-4795.4200708	NE,NO	IE,NE,NO				-4795.4200708
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**524.1199524**	**57.8848091**				**582.0047615**
A. Solid Waste Disposal on Land	NA,NE,NO	381.1752528					381.1752528
B. Waste-water Handling		142.9446996	57.8848091				200.8295087
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	53.2780820	0.0156481	0.4619918				53.7557219
Aviation	53.2780820	0.0156481	0.4619918				53.7557219
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2072.0822941**						**072.0822941**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							19,296.5323103
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							14,501.1122396

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-12: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1997

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1997
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**11,666.3003711**	**2126.8216189**	**1257.8626731**	**32.9019925**	**194.4136460**	**11.9810700**	**15,290.2813716**
1. Energy	**15,200.6289049**	**487.7550890**	**217.3103376**				**15,905.6943315**
A. Fuel Combustion (Sectoral Approach)	15,079.5227274	158.9075818	217.3103376				15,455.7406468
1. Energy Industries	5624.8044383	1.3344243	23.8146953				5649.9535579
2. Manufacturing Industries and Construction	2189.8340041	5.9150492	24.6549390				2220.4039923
3. Transport	4298.8437571	39.3704391	114.6302735				4452.8444697
4. Other Sectors	2966.0405279	112.2876692	54.2104298				3132.5386269
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	121.1061775	328.8475072	NO				449.9536847
1. Solid Fuels	121.1061775	278.5072080	NO				399.6133855
2. Oil and Natural Gas	NE,NO	50.3402992	NO				50.3402992
2. Industrial Processes	**793.3452778**	**5.2739820**	**0.0148335**	**32.9019925**	**194.4136460**	**11.9810700**	**1037.9308018**
A. Mineral Products	578.1707745	NA	NA				578.1707745
B. Chemical Industry	30.4765200	5.2739820	0.0148335	NA	NA	NA	35.7653355
C. Metal Production	184.6979833	NA,NO	NA	NA	194.4136460	NA,NO	379.1116293
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				32.9019925	NA.NO	11.9810700	44.8830625
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**18.9472000**				**18.9472000**
4. Agriculture		**1077.2465926**	**964.7256585**				**2041.9722511**
A. Enteric Fermentation		628.6960357					628.6960357
B. Manure Management		448.5505569	191.5548787				640.1054357
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	773.1707798				773.1707798
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-4327.6738116**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4327.6738116**
A. Forest Land	-4327.6738116	NE,NO	IE,NE,NO				-4327.6738116
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**556.5459554**	**56.8646435**				**613.4105989**
A. Solid Waste Disposal on Land	NA,NE,NO	394.7385807					394.7385807
B. Waste-water Handling		161.8073746	56.8646435				218.6720181
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	56.2342352	0.0165163	0.4876255				56.7383771
Aviation	56.2342352	0.0165163	0.4876255				56.7383771
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2103.2373286**						**2103.2373286**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							19,617.9551833
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							15,290.2813716

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-13: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1998

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1998
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,976.2988281**	**2161.8855887**	**1277.6980839**	**27.1880557**	**149.2955940**	**13.3863900**	**14,605.7525404**
1. Energy	**14,938.2356769**	**473.4092433**	**214.3902971**				**15,626.0352173**
A. Fuel Combustion (Sectoral Approach)	14,824.0370207	151.5476515	214.3902971				15,189.9749692
1. Energy Industries	5858.6655637	1.4021230	25.2556525				5885.3233392
2. Manufacturing Industries and Construction	2253.8610776	6.2986893	26.4192239				2286.5789907
3. Transport	3714.4372251	32.4833886	107.9240632				3854.8446769
4. Other Sectors	2997.0731544	111.3634505	54.7913575				3163.2279624
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	114.1986561	321.8615919	NO				436.0602480
1. Solid Fuels	114.1986561	275.2799440	NO				389.4786001
2. Oil and Natural Gas	NE,NO	46.5816479	NO				46.5816479
2. Industrial Processes	**787.8835906**	**5.3590740**	**0.0187550**	**27.1880557**	**149.2955940**	**13.3863900**	**983.1314593**
A. Mineral Products	592.5902439	NA	NA				592.5902439
B. Chemical Industry	33.0920700	5.3590740	0.0187550	NA	NA	NA	38.4698990
C. Metal Production	162.2012767	NA,NO	NA	NA	149.2955940	NA.NO	311.4968707
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA.NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				27.1880557	NA,NO	13.3863900	40.5744457
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**27.9561100**				**27.9561100**
4. Agriculture		**1107.0858773**	**979.5575524**				**2086.6434297**
A. Enteric Fermentation		641.2589960					641.2589960
B. Manure Management		465.8268813	187.3275762				653.1544575
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	792.2299762				792.2299762
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-4749.8204393**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4749.8204393**
A. Forest Land	-4749.8204393	NE,NO	IE,NE,NO				-4749.8204393
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**576.0313940**	**55.7753694**				**631.8067635**
A. Solid Waste Disposal on Land	NA,NE,NO	409.0912156					409.0912156
B. Waste-water Handling		166.9401784	55.7753694				222.7155479
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	51.7632830	0.0152032	0.4488564				52.2273426
Aviation	51.7632830	0.0152032	0.4488564				52.2273426
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2130.7061023**						**2130.7061023**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							19,355.5729797
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							14,605.7525404

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-14: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 1999

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 1999
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,024.9945024**	**2138.6316011**	**1279.5532563**	**24.0640374**	**105.6120000**	**16.1062100**	**13,588.9616072**
1. Energy	**14,303.7916916**	**449.5637881**	**209.1547353**				**14,962.5102150**
A. Fuel Combustion (Sectoral Approach)	14,188.4646728	147.7297929	209.1547353				14,545.3492011
1. Energy Industries	5170.9448440	1.2482131	22.2719474				5194.4650045
2. Manufacturing Industries and Construction	2271.7162112	4.6325641	21.2020669				2297.5508422
3. Transport	3534.1286451	29.9126995	111.2219614				3675.2633059
4. Other Sectors	3211.6749725	111.9363163	54.4587596				3378.0700484
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	115.3270188	301.8339951	NO				417.1610139
1. Solid Fuels	115.3270188	256.7381040	NO				372.0651228
2. Oil and Natural Gas	NE.NO	45.0958911	NO				45.0958911
2. Industrial Processes	**798.1937868**	**5.7186360**	**0.0165385**	**24.0640374**	**105.6120000**	**16.1062100**	**949.7112087**
A. Mineral Products	593.5607068	NA	NA				593.5607068
B. Chemical Industry	31.6316600	5.7186360	0.0165385	NA	NA	NA	37.3668345
C. Metal Production	173.0014200	NA,NO	NA	NA	105.6120000	NA.NO	278.6134200
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				24.0640374	NA,NO	16.1062100	40.1702474
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**32.4033700**				**32.4033700**
4. Agriculture		**1,088.6785123**	**977.2439920**				**2065.9225044**
A. Enteric Fermentation		664.5946202					664.5946202
B. Manure Management		424.0838922	184.9604336				609.0443258
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	792.2835584				792.2835584
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5076.9909760**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5076.9909760**
A. Forest Land	-5076.9909760	NE,NO	IE,NE,NO				-5076.9909760
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**594.6706647**	**60.7346205**				**655.4052852**
A. Solid Waste Disposal on Land	NA,NE,NO	423.5527257					423.5527257
B. Waste-water Handling		171.1179390	60.7346205				231.8525595
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	61.8007390	0.0181513	0.5358945				62.3547848
Aviation	61.8007390	0.0181513	0.5358945				62.3547848
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**1862.9165452**						**1862.9165452**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							18,665.9525832
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							13,588.9616072

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-15: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2000

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2000
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,035.6748538**	**2228.8638153**	**1319.3256447**	**31.1267164**	**105.6120000**	**15.7381500**	**13,736.3411802**
1. Energy	**14,398.6462014**	**440.0064697**	**223.9608194**				**15,062.6134905**
A. Fuel Combustion (Sectoral Approach)	14,282.9403251	144.6703828	223.9608194				14,651.5715273
1. Energy Industries	5473.4099168	1.2903654	23.1683852				5497.8686675
2. Manufacturing Industries and Construction	2240.5098748	4.7842458	24.1357079				2269.4298285
3. Transport	3680.9109932	28.5686945	122.8796602				3832.3593479
4. Other Sectors	2888.1095403	110.0270770	53.7770662				3051.9136834
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	115.7058763	295.3360870	NO				411.0419632
1. Solid Fuels	115.7058763	252.1175160	NO				367.8233923
2. Oil and Natural Gas	NE,NO	43.2185710	NO				43.2185710
2. Industrial Processes	**812.1895448**	**5.4490016**	**0.0280421**	**31.1267164**	**105.6120000**	**15.7381500**	**970.1434549**
A. Mineral Products	598.6419648	NA	NA				598.6419648
B. Chemical Industry	27.9600900	5.4490016	0.0280421	NA	NA	NA	33.4371337
C. Metal Production	185.5874900	NA,NO	NA	NA	105.6120000	NA.NO	291.1994900
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				31.1267164	NA,NO	15.7381500	46.8648664
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**42.7285400**				**42.7285400**
4. Agriculture		**1169.0136029**	**993.3308007**				**2162.3444036**
A. Enteric Fermentation		700.9788869					700.9788869
B. Manure Management		468.0347160	183.2902701				651.3249862
C. Rice Cultivation		NO					NO
D. Agricultural Soils [3]		NO	810.0405305				810.0405305
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5175.1608924**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5175.1608924**
A. Forest Land	-5175.1608924	NE,NO	IE,NE,NO				-5175.1608924
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**614.3947410**	**59.2774425**				**673.6721835**
A. Solid Waste Disposal on Land	NA,NE,NO	438.9244844					438.9244844
B. Waste-water Handling		175.4702566	59.2774425				234.7476992
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	71.0884460	0.0208791	0.6164313				71.7257564
Aviation	71.0884460	0.0208791	0.6164313				71.7257564
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**1879.9083628**						**1879.9083628**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	18,911.5020726
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	13,736.3411802

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-16: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2001

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2001
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [(1)]**	**CH_4**	**N_2O**	**HFCs [(2)]**	**PFCs [(2)]**	**SF_6 [(2)]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [(1)]	**10,856.7993449**	**2180.1319369**	**1308.5941094**	**38.5455759**	**105.6120000**	**16.1086000**	**14,505.7915670**
1. Energy	**15,279.9510747**	**405.3276511**	**231.6102835**				**15,916.8890093**
A. Fuel Combustion (Sectoral Approach)	15,146.7620930	131.8513714	231.6102835				15,510.2237479
1. Energy Industries	6175.9545325	1.4297754	25.2966594				6202.6809673
2. Manufacturing Industries and Construction	2182.2173532	5.8795102	23.3181335				2211.4149969
3. Transport	3813.5257419	28.4275043	131.6295396				3973.5827858
4. Other Sectors	2975.0644653	96.1145816	51.3659509				3122.5449979
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	133.1889818	273.4762796	NO				406.6652614
1. Solid Fuels	133.1889818	232.6108680	NO				365.7998498
2. Oil and Natural Gas	NE,NO	40.8654116	NO				40.8654116
2. Industrial Processes	**851.4549223**	**5.8324635**	**0.0250993**	**38.5455759**	**105.6120000**	**16.1086000**	**1017.5786610**
A. Mineral Products	623.2784223	NA	NA				623.2784223
B. Chemical Industry	36.6513000	5.8324635	0.0250993	NA	NA	NA	42.5088628
C. Metal Production	191.5252000	NA,NO	NA	NA	105.6120000	NA,NO	297.1372000
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [(2)]				38.5455759	NA,NO	16.1086000	54.6541759
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**36.3679600**				**36.3679600**
4. Agriculture		**1144.9479457**	**982.4442278**				**2127.3921734**
A. Enteric Fermentation		684.3611617					684.3611617
B. Manure Management		460.5867840	180.8244887				641.4112727
C. Rice Cultivation		NO					NO
D. Agricultural Soils[(3)]		NO	801.6197391				801.6197391
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5274.6066522**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5274.6066522**
A. Forest Land	-5274.6066522	NE,NO	IE,NE,NO				-5274.6066522
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**624.0238767**	**58.1465388**				**682.1704155**
A. Solid Waste Disposal on Land	NA,NE,NO	452.4590088					452.4590088
B. Waste-water Handling		171.5648679	58.1465388				229.7114067
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	80.2740953	0.0235770	0.6960831				80.9937554
Aviation	80.2740953	0.0235770	0.6960831				80.9937554
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**1839.4804674**						**1839.4804674**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							19,780.3982192
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							14,505.7915670

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-17: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2002

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2002
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,783.6571470**	**2257.1263006**	**1336.7633645**	**50.3599824**	**116.4440000**	**17.3346700**	**14,561.6854645**
1. Energy	**15,437.4833315**	**430.8744294**	**236.2613610**				**16,104.6191220**
A. Fuel Combustion (Sectoral Approach)	15,295.6746002	129.1148591	236.2613610				15,661.0508204
1. Energy Industries	6423.6249405	1.4629154	26.6845974				6451.7724533
2. Manufacturing Industries and Construction	2216.0727638	6.2911893	22.2991523				2244.6631054
3. Transport	3825.5912430	25.9492804	136.5172008				3988.0577243
4. Other Sectors	2830.3856529	95.4114739	50.7604105				2976.5575374
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	141.8087313	301.7595703	NO				443.5683016
1. Solid Fuels	141.8087313	263.7505920	NO				405.5593233
2. Oil and Natural Gas	NE,NO	38.0089783	NO				38.0089783
2. Industrial Processes	**841.8545039**	**5.1074428**	**0.0227498**	**50.3599824**	**116.4440000**	**17.3346700**	**1031.1233489**
A. Mineral Products	553.0933739	NA	NA				553.0933739
B. Chemical Industry	33.1388700	5.1074428	0.0227498	NA	NA	NA	38.2690626
C. Metal Production	255.6222600	NA,NO	NA	NA	116.4440000	NA.NO	372.0662600
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				50.3599824	NA,NO	17.3346700	67.6946524
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**36.5319500**				**36.5319500**
4. Agriculture		**1182.8814307**	**1005.2889661**				**2188.1703968**
A. Enteric Fermentation		691.1391495					691.1391495
B. Manure Management		491.7422812	185.8020506				677.5443318
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	819.4869155				819.4869155
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5495.6806883**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5495.6806883**
A. Forest Land	-5495.6806883	NE,NO	IE,NE,NO				-5495.6806883
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**638.2629976**	**58,6583376**				**696.9213353**
A. Solid Waste Disposal on Land	NA,NE,NO	464.1935576					464.1935576
B. Waste-water Handling		174.0694401	58,6583376				232.7277777
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	82.6412518	0.0242723	0,7166095				83.3821335
Aviation	82.6412518	0.0242723	0,7166095				83.3821335
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**1872.4732328**						**1872.4732328**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	20,057.3661529
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	14,561.6854645

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-18: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2003

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2003
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,712.5826675**	**2212.3546803**	**1299.9411454**	**64.2852678**	**118.9900000**	**17.9154400**	**14,426.0692010**
1. Energy	**15,156.7988088**	**436.5231733**	**243.3923227**				**15,836.7143048**
A. Fuel Combustion (Sectoral Approach)	15,000.3706427	128.0669881	243.3923227				15,371.8299536
1. Energy Industries	6156.8952415	1.4556156	25.3231428				6183.6739998
2. Manufacturing Industries and Construction	2129.4537839	6.8520161	22.4061423				2158.7119423
3. Transport	3965.0555435	24.8767997	144.2308032				4134.1631463
4. Other Sectors	2748.9660739	94.8825568	51.4322345				2895.2808651
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	156.4281660	308.4561852	NO				464.8843512
1. Solid Fuels	156.4281660	271.8049916	NO				428.2331577
2. Oil and Natural Gas	NE,NO	36.6511935	NO				36.6511935
2. Industrial Processes	**874.0117726**	**6.3494760**	**0.0254795**	**64.2852678**	**118.9900000**	**17.9154400**	**1081.5774359**
A. Mineral Products	564.2179526	NA	NA				564.2179526
B. Chemical Industry	41.0213000	6.3494760	0.0254795	NA	NA	NA	47.3962555
C. Metal Production	268.7725200	NA,NO	NA	NA	118.9900000	NA.NO	387.7625200
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				64.2852678	NA,NO	17.9154400	82.2007078
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**33.3321300**				**33.3321300**
4. Agriculture		**1126.4558557**	**966.0025075**				**2092.4583632**
A. Enteric Fermentation		659.5394022					659.5394022
B. Manure Management		466.9164535	173.1396325				640.0560860
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	792.8628750				792.8628750
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-5318.2279138**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5318.2279138**
A. Forest Land	-5318.2279138	NE,NO	IE,NE,NO				-5318.2279138
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**NA,NE,NO**	**643.0261753**	**57.1887056**				**700.2148809**
A. Solid Waste Disposal on Land	NA,NE,NO	470.8981003					470.8981003
B. Waste-water Handling		172.1280750	57.1887056				229.3167806
C. Waste Incineration	NO	NO	NO				NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	79.0212507	0.0232090	0.6852192				79.7296789
Aviation	79.0212507	0.0232090	0.6852192				79.7296789
Marine	NA	NA	NA				NA
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**1989.0287429**						**1989.0287429**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							19,744.2971148
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							14,426.0692010

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-19: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2004

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2004
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**10,743.0273228**	**2179.2491256**	**1266.6669863**	**80.0341269**	**120.0080000**	**18.3121800**	**14,407.2977415**
1. Energy	**15,486.1474348**	**429.5635280**	**254.8580707**				**16,170.5690335**
A. Fuel Combustion (Sectoral Approach)	15,327.1455094	125.3679050	254.8580707				15,707.3714852
1. Energy Industries	6286.3961608	1.4563801	25.9007469				6313.7532878
2. Manufacturing Industries and Construction	2243.2219637	7.8572599	29.6097894				2280.6890130
3. Transport	4112.8512842	22.5641821	149.7602334				4285.1756997
4. Other Sectors	2684.6761008	93.4900830	49.5873010				2827.7534848
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	159.0019254	304.1956229	NO				463.1975483
1. Solid Fuels	159.0019254	270.6537842	NO				429.6557096
2. Oil and Natural Gas	NA,NE,NO	33.5418387	NO				33.5418387
2. Industrial Processes	**900.6004314**	**5.1897720**	**0.0204600**	**80.0341269**	**120.0080000**	**18.3121800**	**1124.1649703**
A. Mineral Products	586.7546234	NA	NA				586.7546234
B. Chemical Industry	43.0013800	5.1897720	0.0204600	NA	NA	NA	48.2116120
C. Metal Production	270.8444280	NA,NO	NA	NA	120.0080000	NA,NO	390.8524280
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				80.0341269	NA,NO	18.3121800	98.3463069
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**39.2460000**				**39.2460000**
4. Agriculture		**1088.4494371**	**910.0865897**				**1998.5360268**
A. Enteric Fermentation		653.5022798					653.5022798
B. Manure Management		434.9471574	162.7635189				597.7106763
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	747.3230707				747.3230707
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5643.7205435**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5643.7205435**
A. Forest Land	-5643.7205435	NE,NO	IE,NE,NO				-5643.7205435
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**656.0463885**	**62.4558659**				**718.5022544**
A. Solid Waste Disposal on Land	NA,NE,NO	482.6642113					482.6642113
B. Waste-water Handling		173.3821773	62.4558659				235.8380431
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	60.2212168	0.0176874	0.5221980				60.7611021
Aviation	60.2212168	0.0176874	0.5221980				60.7611021
Marine	NA,NO	NA,NO	NA,NO				NA,NO
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2162.2414968**						**2162.2414968**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							20,051.0182850
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							14,407.2977415

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-20: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2005

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2005
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**11,240.2984914**	**2184.4070816**	**1284.1790020**	**95.6235969**	**123.5280000**	**18.8403700**	**14,946.8765420**
1. Energy	**15,729.0074874**	**422.1669003**	**268.3239301**				**16,419.4983178**
A. Fuel Combustion (Sectoral Approach)	15,565.3547068	133.6930499	268.3239301				15,967.3716869
1. Energy Industries	6296.7424387	1.7622936	26.6677628				6325.1724952
2. Manufacturing Industries and Construction	2450.6452148	7.6904904	29.2947610				2487.6304662
3. Transport	4386.8215383	21.6243259	160.8384070				4569.2842712
4. Other Sectors	2431.1455150	102.6159400	51.5229993				2585.2844543
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	163.6527806	288.4738503	NO				452.1266309
1. Solid Fuels	163.6527806	255.4861554	NO				419.1389360
2. Oil and Natural Gas	NA,NE,NO	32.9876949	NO				32.9876949
2. Industrial Processes	**941.6610040**	**6.0332714**	**0.0031000**	**95.6235969**	**123.5280000**	**18.8403700**	**1185.6893423**
A. Mineral Products	631.7227340	NA	NA				631.7227340
B. Chemical Industry	46.1700100	6.0332714	0.0031000	NA	NA	NA	52.2063814
C. Metal Production	263.7682600	NA,NO	NA	NA	123.5280000	NA.NO	387.2962600
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				95.6235969	NA,NO	18.8403700	114.4639669
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**43.3203300**				**43.3203300**
4. Agriculture		**1095.9068573**	**909.8954360**				**2005.8022932**
A. Enteric Fermentation		655.6263232					655.6263232
B. Manure Management		440.2805341	163.5718741				603.8524081
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	746.3235619				746.3235619
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5430.3700000**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5430.3700000**
A. Forest Land	-5430.3700000	NE,NO	IE,NE,NO				-5430.3700000
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**660.3000527**	**62.6362059**				**722.9362587**
A. Solid Waste Disposal on Land	NA,NE,NO	486.4528484					486.4528484
B. Waste-water Handling		173.8472043	62.6362059				236.4834102
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	64.5745991	0.0189660	0.5599476				65.1535127
Aviation	64.5745991	0.0189660	0.5599476				65.1535127
Marine	NA,NO	NA,NO	NA,NO				NA,NO
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2300.7583727**						**2300.7583727**
						Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry	20,377.2465420
						Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry	14,946.8765420

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-21: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2006

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2006
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**12,120.7223731**	**2160.4212677**	**1309.2888157**	**112.0486084**	**115.5500000**	**18.8403700**	**15,836.8714349**
1. Energy	**15,888.2490823**	**406.4375624**	**279.4936682**				**16,574.1803129**
A. Fuel Combustion (Sectoral Approach)	15,710.1668208	120.3200393	279.4936682				16,109.9805282
1. Energy Industries	6349.6958607	1.8691221	27.0932707				6378.6582535
2. Manufacturing Industries and Construction	2550.8240910	7.1888970	31.7830543				2589.7960423
3. Transport	4605.9460133	19.6953445	171.3306646				4796.9720224
4. Other Sectors	2203.7008558	91.5666756	49.2866786				2344.5542099
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	178.0822615	286.1175231	NO				464.1997847
1. Solid Fuels	178.0822615	254.4793625	NO				432.5616240
2. Oil and Natural Gas	NA,NE,NO	31.6381607	NO				31.6381607
2. Industrial Processes	**965.5638656**	**5.4460985**	**NA,NO**	**112.0486084**	**115.5500000**	**18.8403700**	**1217.4489424**
A. Mineral Products	670.6728104	NA	NA				670.6728104
B. Chemical Industry	46.2005300	5.4460985	NA,NO	NA	NA	NA	51.6466285
C. Metal Production	248.6905252	NA,NO	NA	NA	115.5500000	NA,NO	364.2405252
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				112.0486084	NA,NO	18.8403700	130.8889784
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**44.1526800**				**44.1526800**
4. Agriculture		**1106.4293191**	**922.7868083**				**2029.2161275**
A. Enteric Fermentation		654.8876044					654.8876044
B. Manure Management		451.5417148	162.9671467				614.5088615
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	759.8196616				759.8196616
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[1]	**-4733.0905747**	**NA,NE,NO**	**IE,NA,NE,NO**				**-4733.0905747**
A. Forest Land	-4733.0905747	NE,NO	IE,NE,NO				-4733.0905747
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**642.1082877**	**62.8556592**				**704.9639469**
A. Solid Waste Disposal on Land	NA,NE,NO	476.3262140					476.3262140
B. Waste-water Handling		165.7820736	62.8556592				228.6377329
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [4]							
International Bunkers	167.0392843	0.1228558	11.8496353				179.0117754
Aviation	73.4816203	0.0215820	0.6371833				74.1403856
Marine	93.5576640	0.1012738	11.2124520				104.8713898
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**2045.1359343**						**2045.1359343**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							20,569.9620097
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							15,836.8714349

[1] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[2] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[3] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[4] See footnote 8 to table Summary 1.A.

Table B-22: SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS 2007

SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS							Inventory 2007
(Sheet 1 of 1)							Submission 2009 v1.2
							SLOVENIA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	**CO_2 [1]**	**CH_4**	**N_2O**	**HFCs [2]**	**PFCs [2]**	**SF_6 [2]**	**Total**
	CO_2 equivalent (Gg)						
Total (Net Emissions) [1]	**11,214.8133234**	**2172.1195586**	**1319.4539302**	**130.9119861**	**91.6905200**	**18.8403700**	**14,947.8296883**
1. Energy	**16,011.3524574**	**401.7597847**	**275.2446773**				**16,688.3569194**
A. Fuel Combustion (Sectoral Approach)	15,826.4359654	116.6266128	275.2446773				16,218.3072555
1. Energy Industries	6566.8076793	1.8618255	27.5971755				6596.2666803
2. Manufacturing Industries and Construction	2312.2180099	6.2735178	10.1940454				2328.6855731
3. Transport	5187.5866147	18.1522204	189.4770976				5395.2159327
4. Other Sectors	1759.8236616	90.3390491	47.9763588				1898.1390695
5. Other	NA	NA	NA				NA
B. Fugitive Emissions from Fuels	184.9164921	285.1331718	NO				470.0496639
1. Solid Fuels	184.9164921	254.4521792	NO				439.3686713
2. Oil and Natural Gas	NA,NE,NO	30.6809926	NO				30.6809926
2. Industrial Processes	**977.8147114**	**6.2339183**	**NA,NO**	**130.9119861**	**91.6905200**	**18.8403700**	**1225.4915059**
A. Mineral Products	703.3877946	NA	NA				703.3877946
B. Chemical Industry	34.2846500	6.2339183	NA,NO	NA	NA	NA	40.5185683
C. Metal Production	240.1422668	NA,NO	NA	NA	91.6905200	NA,NO	331.8327868
D. Other Production	NA						NA
E. Production of Halocarbons and SF_6				NA,NO	NA	NA	NA,NO
F. Consumption of Halocarbons and SF_6 [2]				130.9119861	NA,NO	18.8403700	149.7523561
G. Other	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use	**NA,NE,NO**		**42.1600000**				**42.1600000**
4. Agriculture		**1143.3731480**	**938.7093208**				**2082.0824688**
A. Enteric Fermentation		684.3775966					684.3775966
B. Manure Management		458.9955514	174.3942780				633.3898295
C. Rice Cultivation		NO					NO
D. Agricultural Soils[3]		NO	764.3150427				764.3150427
E. Prescribed Burning of Savannas		NO	NO				NO
F. Field Burning of Agricultural Residues		NA,NO	NA,NO				NA,NO

G. Other		NO	NO				NO
5. Land Use, Land-Use Change and Forestry[(1)]	**-5774.3538455**	**NA,NE,NO**	**IE,NA,NE,NO**				**-5774.3538455**
A. Forest Land	-5774.3538455	NE,NO	IE,NE,NO				-5774.3538455
B. Cropland	NA,NE,NO	NA,NE,NO	NA,NE,NO				NA,NE,NO
C. Grassland	NE,NO	NO	NO				NE,NO
D. Wetlands	NE,NO	NE,NO	NE,NO				NE,NO
E. Settlements	NE,NO	NE	NE				NE,NO
F. Other Land	NO	NO	NO				NO
G. Other	NE	NE	NE				NE
6. Waste	**IE,NA,NE,NO**	**620.7527076**	**63.3399322**				**684.0926398**
A. Solid Waste Disposal on Land	NA,NE,NO	453.3520038					453.3520038
B. Waste-water Handling		167.4007038	63.3399322				230.7406360
C. Waste Incineration	IE	IE,NO	IE,NO				IE,NO
D. Other	NA	NA	NA				NA
7. Other *(as specified in Summary 1.A)*	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Memo Items: [(4)]							
International Bunkers	254.7820754	0.1990584	19.7186987				274.6998325
Aviation	97.2866674	0.0285737	0.8436047				98.1588458
Marine	157.4954080	0.1704847	18.8750940				176.5409867
Multilateral Operations	**NA**	**NA**	**NA**				**NA**
CO_2 Emissions from Biomass	**1968.6003875**						**1968.6003875**
Total CO_2 Equivalent Emissions without Land Use, Land-Use Change and Forestry							20,722.1835338
Total CO_2 Equivalent Emissions with Land Use, Land-Use Change and Forestry							14,947.8296883

[(1)] For CO_2 from Land Use, Land-use Change and Forestry the net emissions/removals are to be reported. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

[(2)] Actual emissions should be included in the national totals. If no actual emissions were reported, potential emissions should be included.

[(3)] Parties which previously reported CO_2 from soils in the Agriculture sector should note this in the NIR.

[(4)] See footnote 8 to table Summary 1.A.

Table B-23: EMISSION TRENDS 1986–2007

EMISSION TRENDS

SUMMARY

(Part 1 of 5)

Inventory 2007

Submission 2009 v1.2

SLOVENIA

GREENHOUSE GAS EMISSIONS	Base year (1986)	1987	1988	1989	1990
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
CO_2 emissions including net CO_2 from LULUCF	14703.3088533	13722.8317123	13281.7255857	12725.6083563	11558.1753346
CO_2 emissions excluding net CO_2 from LULUCF	16292.5621867	15739.1786486	15459.9516093	15398.8301339	14743.9220013
CH_4 emissions including CH_4 from LULUCF	2384.0203833	2368.3897968	2344.5788723	2344.4237095	2303.5938601
CH_4 emissions excluding CH_4 from LULUCF	2384.0203833	2368.3897968	2344.5788723	2344.4237095	2303.5938601
N_2O emissions including N_2O from LULUCF	1376.4974432	1394.0609170	1336.1321221	1277.8271019	1256.1776903
N_2O emissions excluding N_2O from LULUCF	1376.4974432	1394.0609170	1336.1321221	1277.8271019	1256.1776903
HFCs	NA,NO	NA,NO	NA,NO	NA.NO	NA,NO
PFCs	276.2911200	317.8728000	219.6320000	249.8314000	257.4443200
SF_6	10.2411500	10.2411500	10.2411500	11.4648300	10.3032900
Total (including LULUCF)	**18,750.3589499**	**17,813.3963761**	**17,192.3097302**	**16,609.1553977**	**15,385.6944950**
Total (excluding LULUCF)	**20,339.6122832**	**19,829.7433124**	**19,370.5357538**	**19,282.3771753**	**18,571.4411617**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year (1986)	1987	1988	1989	1990
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
1. Energy	16,069.0194247	15,504.6816230	15,128.6063349	15,101.7559621	14,395.8125846
2. Industrial Processes	1288.0587276	1313.7501194	1289.1338963	1281.5504291	1292.1559295
3. Solvent and Other Product Use	81.9032400	72.2774300	62.6516200	53.0258100	43.4000000
4. Agriculture	2334.2956833	2363.9744912	2306.4383419	2249.3194493	2242.7259723
5. Land Use, Land-Use Change and Forestry[(5)]	-1589.2533333	-2016.3469363	-2178.2260236	-2673.2217776	-3185.7466667
6. Waste	566.3352076	575.0596488	583.7055608	596.7255247	597.3466752
7. Other	NA	NA	NA	NA	NA
Total (including LULUCF)[(5)]	**18,750.3589499**	**17,813.3963761**	**17,192.3097302**	**16,609.1553977**	**15,385.6944950**

(1) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the COP. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

(2) Fill in net emissions/removals as reported in table Summary 1.A. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(3) Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO_2 equivalent emissions.

(4) In accordance with the UNFCCC reporting guidelines, HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is Gg of CO_2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.

(5) Includes net CO_2, CH_4 and N_2O from LULUCF.

EMISSION TRENDS

SUMMARY

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Inventory 2007

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SLOVENIA

GREENHOUSE GAS EMISSIONS	1991	1992	1993	1994	1995
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
CO_2 emissions including net CO_2 from LULUCF	9839.2134669	9738.3589613	9626.2299636	9787.9154103	10,101.8053863
CO_2 emissions excluding net CO_2 from LULUCF	13,763.1601336	13,679.3556280	14,049.1999636	14,185.1820769	15,007.0466349
CH_4 emissions including CH_4 from LULUCF	2189.2684276	2267.6727487	2191.5680312	2175.6732704	2167.3443182
CH_4 emissions excluding CH_4 from LULUCF	2189.2684276	2267.6727487	2191.5680312	2175.6732704	2167.3443182
N_2O emissions including N_2O from LULUCF	1174.1038548	1269.4424144	1171.6876805	1199.0389611	1213.6697215
N_2O emissions excluding N_2O from LULUCF	1174.1038548	1269.4424144	1171.6876805	1199.0389611	1213.6697215
HFCs	NA,NO	NA,NO	NA,NE,NO	NA,NE,NO	28.9572790
PFCs	302.5801800	243.0198400	251.1373200	281.6038400	285.6848400
SF_6	10.1097000	10.1336000	11.0489700	11.3596700	11.5221900
Total (including LULUCF)	**13,515.2756293**	**13,528.6275643**	**13,251.6719653**	**13,455.5911518**	**13,808.9837350**
Total (excluding LULUCF)	**17,439.2222960**	**17,469.6242310**	**17,674.6419653**	**17,852.8578185**	**18,714.2249835**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1991	1992	1993	1994	1995
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
1. Energy	13,554.1567913	13,578.7152212	14,060.5039198	14,046.5930944	14,893.7695763
2. Industrial Processes	1177.6251514	1023.5838352	899.0714593	1082.0797004	1109.4700598
3. Solvent and Other Product Use	37.2000000	27.9000000	19.6815900	18.8349800	17.2508800
4. Agriculture	2084.7678998	2274.1426206	2128.4931776	2133.2399015	2117.3635509
5. Land Use, Land-Use Change and Forestry[5]	-3923.9466667	-3940.9966667	-4422.9700000	-4397.2666667	-4905.2412485
6. Waste	585.4724535	565.2825540	566.8918185	572.1101421	576.3709165
7. Other	NA	NA	NA	NA	NA
Total (including LULUCF)[5]	**13,515.2756293**	**13,528.6275643**	**13,251.6719653**	**13,455.5911518**	**13,808.9837350**

(1) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the COP. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

(2) Fill in net emissions/removals as reported in table Summary 1.A. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(3) Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO_2 equivalent emissions.

(4) In accordance with the UNFCCC reporting guidelines, HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is Gg of CO_2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.

(5) Includes net CO_2, CH_4 and N_2O from LULUCF.

EMISSION TRENDS

SUMMARY

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SLOVENIA

GREENHOUSE GAS EMISSIONS	1996	1997	1998	1999	2000
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
CO_2 emissions including net CO_2 from LULUCF	10,889.6459281	11,666.3003711	10,976.2988281	10,024.9945024	10,035.6748538
CO_2 emissions excluding net CO_2 from LULUCF	15,685.0659989	15,993.9741827	15,726.1192674	15,101.9854783	15,210.8357462
CH_4 emissions including CH_4 from LULUCF	2113.2639872	2126.8216189	2161.8855887	2138.6316011	2228.8638153
CH_4 emissions excluding CH_4 from LULUCF	2113.2639872	2126.8216189	2161.8855887	2138.6316011	2228.8638153
N_2O emissions including N_2O from LULUCF	1219.5511192	1257.8626731	1277.6980839	1279.5532563	1319.3256447
N_2O emissions excluding N_2O from LULUCF	1219.5511192	1257.8626731	1277.6980839	1279.5532563	1319.3256447
HFCs	27.2930450	32.9019925	27.1880557	24.0640374	31.1267164
PFCs	239.5324400	194.4136460	149.2955940	105.6120000	105.6120000
SF_6	11.8257200	11.9810700	13.3863900	16.1062100	15.7381500
Total (including LULUCF)	**14,501.1122396**	**15,290.2813716**	**14,605.7525404**	**13,588.9616072**	**13,736.3411802**
Total (excluding LULUCF)	**19,296.5323103**	**19,617.9551833**	**19,355.5729797**	**18,665.9525832**	**18,911.5020726**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	1996	1997	1998	1999	2000
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
1. Energy	15,579.5955939	15,905.6943315	15,626.0352173	14,962.5102150	15,062.6134905
2. Industrial Processes	1067.0212035	1037.9308018	983.1314593	949.7112087	970.1434549
3. Solvent and Other Product Use	18.6992000	18.9472000	27.9561100	32.4033700	42.7285400
4. Agriculture	2049.2115514	2041.9722511	2086.6434297	2065.9225044	2162.3444036
5. Land Use, Land-Use Change and Forestry[(5)]	-4795.4200708	-4327.6738116	-4749.8204393	-5076.9909760	-5175.1608924
6. Waste	582.0047615	613.4105989	631.8067635	655.4052852	673.6721835
7. Other	NA	NA	NA	NA	NA
Total (including LULUCF)[(5)]	**14,501.1122396**	**15,290.2813716**	**14,605.7525404**	**13,588.9616072**	**13,736.3411802**

(1) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the COP. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

(2) Fill in net emissions/removals as reported in table Summary 1.A. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(3) Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO_2 equivalent emissions.

(4) In accordance with the UNFCCC reporting guidelines, HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is Gg of CO_2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.

(5) Includes net CO_2, CH_4 and N_2O from LULUCF.

EMISSION TRENDS

SUMMARY

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GREENHOUSE GAS EMISSIONS	2001	2002	2003	2004	2005
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
CO_2 emissions including net CO_2 from LULUCF	10,856.7993449	10,783.6571470	10,712.5826675	10,743.0273228	11,240.2984914
CO_2 emissions excluding net CO_2 from LULUCF	16,131.4059971	16,279.3378353	16,030.8105813	16,386.7478662	16,670.6684914
CH_4 emissions including CH_4 from LULUCF	2180.1319369	2257.1263006	2212.3546803	2179.2491256	2184.4070816
CH_4 emissions excluding CH_4 from LULUCF	2180.1319369	2257.1263006	2212.3546803	2179.2491256	2184.4070816
N_2O emissions including N_2O from LULUCF	1308.5941094	1336.7633645	1299.9411454	1266.6669863	1284.1790020
N_2O emissions excluding N_2O from LULUCF	1308.5941094	1336.7633645	1299.9411454	1266.6669863	1284.1790020
HFCs	38.5455759	50.3599824	64.2852678	80.0341269	95.6235969
PFCs	105.6120000	116.4440000	118.9900000	120.0080000	123.5280000
SF_6	16.1086000	17.3346700	17.9154400	18.3121800	18.8403700
Total (including LULUCF)	**14,505.7915670**	**14,561.6854645**	**14,426.0692010**	**14,407.2977415**	**14,946.8765420**
Total (excluding LULUCF)	**19,780.3982192**	**20,057.3661529**	**19,744.2971148**	**20,051.0182850**	**20,377.2465420**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2001	2002	2003	2004	2005
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)
1. Energy	15,916.8890093	16,104.6191220	15,836.7143048	16,170.5690335	16,419.4983178
2. Industrial Processes	1017.5786610	1031.1233489	1081.5774359	1124.1649703	1185.6893423
3. Solvent and Other Product Use	36.3679600	36.5319500	33.3321300	39.2460000	43.3203300
4. Agriculture	2127.3921734	2188.1703968	2092.4583632	1998.5360268	2005.8022932
5. Land Use, Land-Use Change and Forestry[(5)]	-5274.6066522	-5495.6806883	-5318.2279138	-5643.7205435	-5430.3700000
6. Waste	682.1704155	696.9213353	700.2148809	718.5022544	722.9362587
7. Other	NA	NA	NA	NA	NA
Total (including LULUCF)[(5)]	**14,505.7915670**	**14,561.6854645**	**14,426.0692010**	**14,407.2977415**	**14,946.8765420**

(1) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the COP. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

(2) Fill in net emissions/removals as reported in table Summary 1.A. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(3) Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO_2 equivalent emissions.

(4) In accordance with the UNFCCC reporting guidelines, HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is Gg of CO_2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.

(5) Includes net CO_2, CH_4 and N_2O from LULUCF.

EMISSION TRENDS

SUMMARY

(Part 5 of 5)

Inventory 2007

Submission 2009 vl. 2

SLOVENIA

GREENHOUSE GAS EMISSIONS	2006	2007	Change from base to latest reported year
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	(%)
CO_2 emissions including net CO_2 from LULUCF	12,120.7223731	11,214.8133234	-23.7259216
CO_2 emissions excluding net CO_2 from LULUCF	16,853.8129479	16,989.1671689	4.2756012
CH_4 emissions including CH_4 from LULUCF	2160.4212677	2172.1195586	-8.8883814
CH_4 emissions excluding CH_4 from LULUCF	2160.4212677	2172.1195586	-8.8883814
N_2O emissions including N_2O from LULUCF	1309.2888157	1319.4539302	-4.1441060
N_2O emissions excluding N_2O from LULUCF	1309.2888157	1319.4539302	-4.1441060
HFCs	112.0486084	130.9119861	100.0000000
PFCs	115.5500000	91.6905200	-66.8138013
SF_6	18.8403700	18.8403700	83.9673279
Total (including LULUCF)	**15,836.8714349**	**14,947.8296883**	**-20.2797678**
Total (excluding LULUCF)	**20,569.9620097**	**20,722.1835338**	**1.8809171**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2006	2007	Change from base to latest reported year
	CO_2 equivalent (Gg)	CO_2 equivalent (Gg)	(%)
1. Energy	16,574.1803129	16,688.3569194	3.8542333
2. Industrial Processes	1217.4489424	1225.4915059	-4.8574821
3. Solvent and Other Product Use	44.1526800	42.1600000	-48.5246249
4. Agriculture	2029.2161275	2082.0824688	-10.8046815
5. Land Use, Land-Use Change and Forestry[(5)]	-4733.0905747	-5774.3538455	263.3375324
6. Waste	704.9639469	684.0926398	20.7928857
7. Other	NA	NA	0.0000000
Total (including LULUCF)[(5)]	**15,836.8714349**	**14,947.8296883**	**-20.2797678**

(1) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the COP. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.
(2) Fill in net emissions/removals as reported in table Summary 1.A. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).
(3) Enter actual emissions estimates. If only potential emissions estimates are available, these should be reported in this table and an indication for this be provided in the documentation box. Only in these rows are the emissions expressed as CO_2 equivalent emissions.
(4) In accordance with the UNFCCC reporting guidelines, HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for this row is Gg of CO_2 equivalent and that appropriate notation keys should be entered in the cells for the individual chemicals.
(5) Includes net CO_2, CH_4 and N_2O from LULUCF.

Annex C: Transfer of common European policies of GHG reduction into Slovenian legislation

Table C: Details on implementation of common European policies

Details on implementation of common European policies					
CCPM	**Member state**	**Implementation in Member State**	**Status**	**Quality assessment of reduction of emissions or quality use category[32]:**	**Remark**
Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC	Sl	The Directive was transferred into Slovenian legislation by the Environmental Protection Act (OG RS 41/01 and others), on the basis of which the following implementing acts were adopted: Decree on activities, greenhouse gases and installations for which a permit for greenhouse gas emissions is required (OG RS no. 67/2004, 58/2006), Ordinance on the National Plan for the Allocation of Emission Coupons for 2005-2007 (OG RS, no. 112/2004, 131/2004, 53/2005), Ordinance on the National Plan for the Allocation of Emission Coupons for 2008-2012 (OG RS, no. 42/2007, 70/2007), Regulation on Detailed Method and Conditions for Establishing and Keeping the Emission Coupon Register (OG RS, No. 56/2005), Rules on the General Operating Conditions for the Emission Coupon Register (OG RS, No 82/2005) and the Rules on criteria for verification of a report on greenhouse gas emissions and on conditions to be met by the verifier (OG RS no. 17/2005, 79/2005)	Implemented	(a) New national measure implemented after the European Policy was adopted Estimations indicate that the Slovenian companies included in the EU-ETS in the period 2008-2012 will have to purchase emission coupons in the amount of 1.223 Gg CO_2 emissions annually.	
Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity	Sl	Excise Duty Act - official consolidated text /ZTro-UPB2/(OG RS, No 20/2004) Act amending the Excise Duty Act / ZTro-F/ (OG RS no. 122/2006) Rules on the Implementation of the Excise Duty Act (OG RS, No. 49/2004, 47/2005, 17/2007 (18/2007 - corrected)) Decree on environmental tax for the pollution of air with emission from carbon dioxide (OG RS, no. 43/2005, 58/2005, 87/2005, 20/2006, 78/2008)	Implemented	(a) New national measure implemented after the European Policy was adopted The excise duty on energy was introduced after the adoption of the directive	The legislation was adopted before the adoption of the directive. At its adoption it was harmonised with the Directive. Final implementation of the directive was achieved with the Act amending the Excise Duty Act with the introduction of the excise duty on energy. Amendment of the decree on environmental tax has introduced the payment of the tax for the use of F-gases.

[32] (a) New national measure adopted after the adoption of the European policy; (b) National measure adopted before the adoption of the European policy; (c) National measure adopted before the adoption of the European policy, but intensified with the European policy

Directive 2001/77/EC of 27 September 2001 on the promotion of the electricity produced from renewable energy source in the internal electricity market	Sl	Energy Act (OG RS, No 79/99 (8/00 - corr.) and others) Act amending the Energy Act (EZ-C) (OG RS, no. 70/2008) Regulation on supports for the electricity generated from renewable energy sources (OG RS, no. 37/2009) Decree on the Conditions for Acquisition of the Status of Qualified Electricity Producer (OG RS, No 71/2007) Decision on Prices and Premiums for the Purchase of Electricity from Qualified Electricity Producers (OG RS, No 75/2006) (shall apply to »old« producers that will not be included in the new scheme, to 2011) Resolution on the National Energy Programme/ReNEP/ (OG RS, No 57/2004) Decree on the Issue of Certificate of Origin for Electricity (OG RS, no 121/2005) Regulation on issuing of the Declarations for the production units and of the Guaranties of Origin (OG RS, no. 8/2009)	Implemented	(a) New national measure implemented after the European Policy was adopted	In 2009, the supporting system for power generation in CHP and RES units was established; namely, in two forms: as guaranteed purchase of electricity and operational support. New and partially new production plants of CHP with high efficiency and RES plants with valid declaration for production units are eligible for the obtainment of support. The basis for the promotion of power generation from renewable energy sources and CHP was already set in the Energy Act with the definition of the Qualified producer prior to the adoption of the Directive. The ReNEP set the objective for the share of electricity from RES for 2010 in gross consumption of electricity; namely, 33.6 %. Guaranties of origin of electricity were introduced after the adoption of the directive.
Directive 2004/8/EC of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending the Directive **92/42/EGS**	Sl	Energy Act (OG RS, No 79/99 (8/00 - corr.) and others) Act amending the Energy Act (EZ-C) (OG RS, no. 70/2008) Resolution on the National Energy Programme /ReNEP/ (OG RS, no. 57/2004) Regulation on supports for the electricity generated in cogeneration with high efficiency (OG RS, no. 37/2009) Regulation on determination of the amount of electricity from cogeneration of heat and electricity which is generated with high efficiency and determination of efficiency of transformation of energy from biomass (OG RS, no. 37/2009) Decision on Prices and Premiums for the Purchase of Electricity from Qualified Electricity Producers (OG RS, No 75/2006) (shall apply to »old« producers that will not be included in the new scheme, to 2011) Decree on the Issue of Certificate of Origin for Electricity (OG RS, no 121/2005) Regulation on issuing of the Declarations for the production units and of the Guaranties of Origin (OG RS, no. 8/2009) Rules amending the Order on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels (OG RS, no. 63/2007)	Implemented	(a) New national measure implemented after the European Policy was adopted	See above. ReNEP set the objective for power generation of CHP units; namely 1600GWh by 2010.
»Motor challenge« Programme	Sl		Implemented	(a) New national measure implemented after the European Policy was adopted	IJS-CEU is the Slovenian contact for the programme »Motor Challenge«. Within the framework of the project DEXA-MCP, a web page was created and brochures were prepared.
Participation in Community ecomanagement and audit scheme (EMAS) Council regulation	Sl	Environmental Protection Act /ZVO-1/ (OG RS no. 41/2004 and others) (Articles 32 and 33)	Implemented	(a) New national measure implemented after the European Policy was adopted	One Slovenian company was included in the EMAS scheme in 2007.

761/2001					
Directive (2002/91/EC) of 16 December 2002 on Energy Performance of Buildings	Sl	Rules on efficient use of energy in buildings (OG RS no. 93/2008) Rules on feasibility study of alternative energy systems for energy supply in buildings (OG RS no. 35/2008) Rules on regular inspection of air-conditioning systems (OG RS, no. 26/2008) Decree on the manner and subject of, and conditions for performing a mandatory public utility service of measuring, checking and cleaning of combustion plants, flue ducts and ventilation devices for the purposes of environmental protection and efficient energy use, human health protection and fire protection (OG RS no. 129/2004, 57/2006, 105/2007,102/2008) Decree on the manner and subject of, and conditions for performing a mandatory public utility service of measuring, checking and cleaning of combustion plants, flue ducts and ventilation devices for the purposes of environmental protection and efficient energy use, human health protection and fire protection (OG RS, no. 129/2004, 57/2006, 105/2007) Rules on the maintenance of small combustion plants, flue ducts and vents when performing public service obligation of measurements, checking and cleaning of combustion plants, flue ducts and vents (OG RS no. 128/2004 (18/2005 - corrected)) Environmental Protection Act /ZVO-1/ (OG RS, no. 41/2004, 70/08) and other legislation regulating the threshold concentration and rules for the emission monitoring.	Implemented	(a) New national measure implemented after the European Policy was adopted	Further implementation of the directive will include the adoption of implementing act with regard to the issue of energy cards of buildings, training, licences and register of licences of independent experts for the preparation of energy cards and inspection of air-conditioning systems. Other regulations will be adopted in the first half of 2009.
Energy labelling of household appliances	Sl	Energy Act (EZ), OG RS no. 79/1999 (8/2000 corrected) Act Amending the Energy Act (EZ-A), OG RS no. 51/2004 Act Amending the Energy Act (EZ-C), OG RS no. 70/2008 Rules on the distribution and calculation of costs of heat in residential and other buildings with more than one consumer, OG RS no. 52/2005 Rules on data submitted by the energy activity operators, OG RS no. 95/2007 National efficiency energy action plan for the period 2008-2016, adopted by the Government of the RS on 31 January 2008	Implemented	(a) New national measure implemented after the European Policy was adopted	
Directive 92/42/EEC of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels	Sl	Order on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels (OG RS no. 107/2001, 20/2002, 63/2007)	Implemented	(a) New national measure implemented after the European Policy was adopted	

Change in relations between forms of transport, particularly in favour of rail transport **(2001/12/EC, 2001/13/EC, 2001/14/ES, Regulation 881/2004 of 29/04/2004, 2004/49/EC, 2004/50/ES, 2004/51/EC of 29/04/2004)**	Sl	Railway Transport Act /ZZelP/ (OG RS no. 92/1999, 11/2001, 33/2001, 110/2002-ZGO-1, 110/2002, 56/2003, 29/2005 CC Dec.: U-I-316/04-6, 15/2007) Act Amending the Railway Transport Act /ZZelP-F/ (OG RS no. 15/2007) (Implementation of the 2nd railway package (Directives 2004/49/EC , 2004/50/EC and 2004/51/EC) Safety of Railway Transport Act / ZVZelP/ (OG RS no. 61/2007) (Implementation of the 2nd railway package (Directives 2004/49/EC and 2004/50/EC) Decree on the Mode of Providing the Mandatory Public Utility of Inland Railway Passenger Transport (OG RS no. 12/2001) Decree on the mode of providing public service obligations in inland and crossborder regional railway passenger transport (OG RS no. 99/2008) Instructions on the Contents of Separate Accounts to be kept by the Beneficiaries of State Grants for Railway Transport and the Account Keeping Method (OG RS, No 11/01) Decree on Combined Transport (OG RS, No 4/01) Decree on the Method of Providing the Mandatory Public Utility of Maintenance and Modernisation of Public Railway Infrastructure and the Operation of Control and Safety Systems (OG RS, No 29/2001, 115/2007) Decree on the Allocation of Train Routes and User Fees for the Use of Public Railway Infrastructure (OG RS no. 38/2008) Decree on the Qualification Procedure for Licensing of Railway Undertakings, the Withdrawal or Extension of a Licence, and the Procedure for Notifying Foreign Licensing Authorities (OG RS no. 34/2001, 122/2007)	Implemented	(a) New national measure implemented after the European Policy was adopted	
Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport	Sl	Decree on the promotion of the use of biofuels and other renewable fuels for the propulsion of motor vehicles (OG RS no. 103/2007) Resolution on the National Energy Programme/ReNEP/ (OG RS, No 57/2004) Excise Duty Act - official consolidated text /ZTro-UPB2/ (OG RS, No 20/2004)	Implemented	If the objective in 2010 will be achieved as stipulated in the Decree (5 %), the GHG emissions will reduce in the amount of 247 Gg CO_2 eq (this assessment doesn't include the increase of emissions in agriculture). (a) New national measure implemented after the European Policy was adopted	The Decree stipulates different objectives for Slovenia than recommended in the Directive. ReNEP stipulated for the use of biofuels in 2005 a 2 % share in motor fuels. In 2003, biofuels were exempt from excise duties.
European Commission agreement with car manufacturers from the EU, Japan and Korea on reduction of CO_2 emissions from new vehicles to 140 g/km by 2008/2009	Sl	-		(a) New national measure implemented after the European Policy was adopted	
Directive 1999/94/EC of 13 December 1999 relating to the availability of consumer information on fuel economy and CO_2 emissions in respect of the marketing of new passenger cars	Sl	Rules on Consumer Information on Fuel Economy and CO_2 Emissions in respect of New Passenger Cars (OG RS no. 86/2003, 133/2003, 41/2004-ZVO-1, 43/2004)	Implemented	(a) New national measure implemented after the European Policy was adopted	

Supporting schemes for farmers (Regulation no. 1782/2003)	Sl	Decree on implementing direct payments in agriculture (OG RS no. 99/2006, 5/2007, 49/2007, 31/2008, 45/2008-ZKme-1, 107/2008)	Implemented	(a) New national measure implemented after the European Policy was adopted	
Support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF), Decree 1783/2003	Sl	Rural Development Programme of the Republic of Slovenia 2007-2013	Implemented	(a) New national measure implemented after the European Policy was adopted	
COUNCIL DIRECTIVE 1999/31/EC of 26 April 1999 on the landfill of waste	Sl	Decree on waste management (OG RS no. 34/2008) Decree on the landfill of waste (OG RS no. 32/2006, 98/2007, 62/2008)	Implemented	(a) New national PAMs implemented after CCPM was adopted	
Directive on energy end-use efficiency and energy services 2006/32/EC	SI	Energy Act (EZ) (OG RS no. 79/1999 (8/2000 corrected)) Act Amending the Energy Act (EZ-C), (OG RS no. 70/2008) Rules on the distribution and calculation of costs of heat in residential and other buildings with more than one consumer (OG RS no. 52/2005) National efficiency energy action plan for the period 2008-2016 (EVA 2007-2511-0037)		(a) New national measure implemented after the European Policy was adopted	
Ecodesign requirements for products (Directive 2005/32/EC)		Technical Requirements for Products and Conformity Assessment Act (official consolidated text) /ZTZPUS-UPB1/ (OG RS no. 99/2004) Environmental Protection Act /ZVO-1/ (OG RS no. 41/2004 and others) Order on energy efficiency requirements for household electric refrigerators, freezers and combinations thereof (OG RS no. 107/2001, 16/2002, 40/2007) Order on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels (OG RS no. 107/2001, 20/2002, 63/2007) Rules on minimum energy efficiency requirements for ballasts for fluorescent lighting (OG RS no. 58/2003, 47/2007)		(a) New national measure implemented after the European Policy was adopted	For the final implementation of the directive, the Decree on a framework for the setting of the ecodesign requirements for energy using products was prepared and is expected to be adopted in the first half of 2008.
HFC emissions from air conditioning systems in motor vehicles (Directive 2006/40/EC)		Technical specification TSV 161/01 **relating to emissions from air conditioning systems in motor vehicles** and their installation. (TSV-161/01)	Implemented	(a) New national measure implemented after the European Policy was adopted	
Regulation (EC) no. 842/2006 on certain fluorinated greenhouse gases		Decree on the implementation of the Regulation (EC) on certain fluorinated greenhouse gases (OG RS no. 32/2007) Decree on the use of products and equipment containing ozone depleting substances or fluorinated greenhouse gases (OG RS no. 78/2008) Rules on professional training of personnel of equipment containing ozone depleting substances or fluorinated greenhouse gases (OG RS no. 17/2009)	Implemented	(a) New national measure implemented after the European Policy was adopted	
Packaging and packaging waste (Directives 94/62/EC, 2004/12/EC, 2005/20/EC)		Decree on the management of packaging and packaging waste (OG RS no. 84/2006, 106/2006, 110/2007) Ordinance on the operational programme for the management of packaging and packaging waste for 2002-2007 period (OG RS no. 29/2002)	Implemented	(a) New national measure implemented after the European Policy was adopted	Final implementation of the directive will be executed with the entry into force of the Decree Amending the Decree on the management of packaging and packaging waste in the end of 2007.

Directive on Waste (Directive 2006/12/EC)		Environmental Protection Act /ZVO-1/ (OG RS no. 41/2004 and others) Decree on the landfill of waste (OG RS no. 32/2006, 98/2007, 62/2008) Decree on waste management (OG RS no. 34/2008) Decree on the incineration of waste (OG RS no. 68/2008)	Implemented	(a) New national measure implemented after the European Policy was adopted	

Annex D: Parameters on projections with existing measures

Table D: Parameters on projections with existing measures

Parameters on projections							
				2005	2010	2015	2020
GDP			MEUR[00]/a	25,849	32,298	38,145	42,218
POPULATION			[1000 pop]	2,001	2,016	2,019	2,016
INTERNATIONAL PRICES	COAL		EUR[00] / GJ	2.0	1.8	1.8	1.9
	OIL		EUR[00] / GJ	7.0	7.2	6.7	7.0
	GAS		EUR[00] / GJ	4.3	4.4	4.1	4.3
ENERGY				2005	2010	2015	2020
PRIMARY ENERGY (gross inland consumption)	LIQUID FUEL		[PJ]	102.70	118.99	119.21	121.52
	NATURAL GAS		[PJ]	43.21	56.20	79.45	88.60
	COAL		[PJ]	64.14	66.39	56.47	55.62
	RES		[PJ]	32.87	42.72	52.94	59.27
	NUCLEAR POWER		[PJ]	64.18	61.85	61.85	61.85
POWER GENERATION BY FUELS	TRANSFORMATIONS	LIQUID FUEL	[GWh]	37.00	40.37	37.55	36.53
		NATURAL GAS	[GWh]	340,00	1,317,22	4,129,77	5,176,96
		COAL	[GWh]	5,275,00	5,584,95	5,765,03	5,657,54
		RES	[GWh]	3,581,00	4,674,57	5,416,27	5,909,93
		NUCLEAR POWER	[GWh]	5,884,00	5,662,85	5,662,85	5,662,85
FINAL ENERGY USE	INDUSTRY	LIQUID FUEL	[PJ]	3.35	3.92	3.85	3.79
		NATURAL GAS	[PJ]	5.15	3.53	4.32	4.89
		COAL	[PJ]	9.29	10.35	10.75	11.09
		RES	[PJ]	25.16	29.21	31.41	32.30
		NUCLEAR POWER	[PJ]	25.83	27.22	29.22	29.93

	SERVICES	LIQUID FUEL	[PJ]	9.71	13.04	12.80	11.66
		NATURAL GAS	[PJ]	1.21	1.57	1.75	1.93
		COAL	[PJ]	0.00	0.00	0.00	0.00
		RES	[PJ]	0.08	0.89	1.04	1.21
		ELECTRICITY	[PJ]	8.71	10.22	11.41	12.22
	HOUSEHOLDS	LIQUID FUEL	[PJ]	16.79	11.67	8.84	6.66
		NATURAL GAS	[PJ]	4.56	5.25	5.71	6.05
		COAL	[PJ]	0.00	0.00	0.00	0.00
		RES	[PJ]	13.57	15.47	16.29	16.01
		ELECTRICITY	[PJ]	10.63	12.02	12.00	12.07
	TRANSPORT	GAS	[PJ]	28.63	22.95	16.51	13.46
		DIESEL	[PJ]	34.29	56.75	65.86	73.96
		OTHER LIQUID FUELS	[PJ]	0.98	1.22	1.63	2.06
		COAL	[PJ]	34.29	56.75	65.86	73.96
		RES	[PJ]	0.00	2.45	6.66	9.71
		ELECTRICITY	[PJ]	0.71	0.71	0.99	1.42
TEMPERATURE DEFICIT			[°C day]	3,282	3,053	3,053	3,053
ADDED VALUE IN INDUSTRY			MEUR[00]/a	7.69	10.13	11.95	12.90
				2000-2005	2005-2010	2010-2015	2015-2020
VALUE ADDED BEFORE ACTIVITY	Real growth		[%]	3.5	5.7	3.4	1.6
Passenger transport			[million pkm]	29,158	33,803	36,595	38,462
Freight transport			[million tkm]	17,088	31,765	41,385	53,731
Number of cars			[million cars]	0.94	1.07	1.12	1.14
			[million cars/popl.]	0.468	0.528	0.554	0.566
RESIDENTIAL SURFACE			[1000 m2]	61,081	65,556	70,166	74,568

NUMBER OF ANIMALS							
CATTLE	dairy			120,273	114,035	104,839	100,775
	Other cattle			332,244	370,301	390,337	405,241
PIGS				547,432	508,333	550,000	550,000
POULTRY				3,176,904	5,487,800	5,551,000	5,551,000
HORSES				16,879	17,000	17,000	17,000
SHEEP				129,352	120,000	120,000	120,000
GOATS				25,480	22,000	22,000	22,000
FERTILISER CONSUMPTION			[t]	56,119	62,428	63,367	63,805
SOLID MUNICIPAL WASTE			[t]	793	740	740	740
PROPORTION OF ORGANIC WASTE			[%]	44	52	52	52
WASTE MANAGEMENT	LANDFILL		[%]	89	78	61	50
	INCINERATED		[%]	0	3	5	10
	SEPARATE COLLECTION		[%]	11	19	34	40

Annex E: Projection results by year and scenario

With existing measures[30]

Table E - 1: Emissions in 2005

2005	[Gg CO_2 eq]						
sector	CO_2	CH_4	N_2O	HFC	PFC	SF_6	TOTAL
Energy	6,460	290	27				6,777
Transport	4,387	22	161				4,569
Industry	3,392	14	29	124	96	19	3,673
Use of Fuel for Power	2,451	8	29				2,488
Industrial Processes	942	6	0	124	96	19	1,186
Other Sectors	2,431	103	52				2,585
Solvents	0	0	43				43
Agriculture	0	1,096	910				2,006
LULUCF	-5,430	0	0				-5,430
Waste	0	660	63				723
TOTAL (without LULUCF)	**16,671**	**2,184**	**1,284**	**124**	**96**	**19**	**20,377**

Table E - 1: Projection of emissions with existing measures for 2010

2010	[Gg CO_2 eq]						
sector	CO_2	CH_4	N_2O	HFC	PFC	SF_6	TOTAL
Energy	6,170	278	24				6,473
Transport	5,852	15	194				6,060
Industry	2,988	8	3	23	105	23	3,150
Use of Fuel for Power	2,175	2	3				2,181
Industrial Processes	813	6	0	23	105	23	970
Other Sectors	2,397	95	53				2,545
Solvents	0	0	42				42
Agriculture	0	1,138	977				2,115
LULUCF	-5,500	0	0				-5,500
Waste	28	583	65				676
TOTAL (without LULUCF)	**17,435**	**2,117**	**1,360**	**23**	**105**	**23**	**21,062**

Table E - 2: Projection of emissions with existing measures for 2015

2015	[Gg CO_2 eq]						
sector	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2	TOTAL
Energy	5,630	254	21				5,905
Transport	6,070	11	189				6,270
Industry	2,837	8	4	21	80	24	2,974
Use of Fuel for Power	2,085	2	4				2,091
Industrial Processes	752	6	0	21	80	24	883
Other Sectors	2,251	100	57				2,408
Solvents	0	0	42				42
Agriculture	0	1,152	994				2,146
LULUCF	-2,730	0	0				-2,730
Waste	28	517	67				612
TOTAL (without LULUCF)	**16,816**	**2,043**	**1,373**	**21**	**80**	**24**	**20,358**

Table E - 3: Projection of emissions with existing measures for 2020

2020	[Gg CO_2 eq]						
sector	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2	TOTAL
Energy	5,100	261	22				5,383
Transport	6,464	12	188				6,664
Industry	2,664	8	4	19	52	23	2,769
Use of Fuel for Power	1,973	2	4				1,979
Industrial Processes	691	6	0	19	52	23	790
Other Sectors	2,077	99	58				2,234
Solvents	0	0	42				42
Agriculture	0	1,164	1,005				2,168
LULUCF	-2,730	0	0				-2,730
Waste	28	474	69				572
TOTAL (without LULUCF)	**16,334**	**2,018**	**1,387**	**19**	**52**	**23**	**19,832**

With additional measures[30]

Table E - 4: Emissions in 2005

2005	[Gg CO_2 eq]						
sector	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2	TOTAL
Energy	6,460	290	27				6,777
Transport	4,387	22	161				4,569
Industry	3,392	14	29	124	96	19	3,673
Use of Fuel for Power	2,451	8	29				2,488
Industrial Processes	942	6	0	124	96	19	1,186
Other Sectors	2,431	103	52				2,585
Solvents	0	0	43				43
Agriculture	0	1,096	910				2,006
LULUCF	-5,430	0	0				-5,430
Waste	0	660	63				723
TOTAL (without LULUCF)	**16,671**	**2,184**	**1,284**	**124**	**96**	**19**	**20,377**

Table E - 5: Projection of emissions with additional measures for 2010

2001	[Gg CO_2 eq]						
sector	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2	TOTAL
Energy	6,170	278	24				6,473
Transport	5,852	15	194				6,060
Industry	2,988	8	3	23	105	23	3,150
Use of Fuel for Power	2,175	2	3				2,181
Industrial Processes	813	6	0	23	105	23	970
Other Sectors	2,377	95	53				2,526
Solvents	0	0	42				42
Agriculture	0	1,138	977				2,115
LULUCF	-5,500	0	0				-5,500
Waste	28	583	65				676
TOTAL (without LULUCF)	**17,415**	**2,117**	**1,360**	**23**	**105**	**23**	**21,043**

Table E - 6: Projection of emissions with additional measures for 2015

2015	[Gg CO_2 eq]						
sector	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2	TOTAL
Energy	5,630	254	21				5,905
Transport	6,070	11	189				6,270
Industry	2,837	8	4	21	80	24	2,974
Use of Fuel for Power	2,085	2	4				2,091
Industrial Processes	752	6	0	21	80	24	883
Other Sectors	2,182	100	57				2,339
Solvents	0	0	42				42
Agriculture	0	1,152	994				2,146
LULUCF	-2,730	0	0				-2,730
Waste	28	517	67				612
TOTAL (without LULUCF)	**16,747**	**2,043**	**1,373**	**21**	**80**	**24**	**20,289**

Table E - 7: Projection of emissions with additional measures for 2020

2020	[Gg CO_2 eq]						
sector	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2	CO_2
Energy	5,100	261	22				5,383
Transport	6,464	12	188				6,664
Industry	2,664	8	4	19	52	23	2,769
Use of Fuel for Power	1,973	2	4				1,979
Industrial Processes	691	6	0	19	52	23	790
Other Sectors	2,008	99	58				2,165
Solvents	0	0	42				42
Agriculture	0	1,164	1,005				2,168
LULUCF	-2,730	0	0				-2,730
Waste	28	474	69				572
TOTAL (without LULUCF)	**16,265**	**2,018**	**1,387**	**19**	**52**	**23**	**19,763**