Climate Strategy

Austria´s Responsibility in Mitigating Climate Change

Federal ministry of agriculture, forestry, environment and water management
Das Lebensministerium

Austria's Responsibility in Mitigating Climate Change

Climate Change

Environmental Problem No. 1

Anthropogenic global warming is generally considered to be the gravest global environmental problem. Its long-term effects can only be alleviated by joint responsible action by the international community.

Also in Austria, which is marked by an Alpine landscape, the first effects of climate change have been noticed long ago.

Just to mention the most visible sign of change, rising average temperatures by 1 to 1.5°C in the Alps has resulted in melting glaciers (see photographs page 4 and 5).

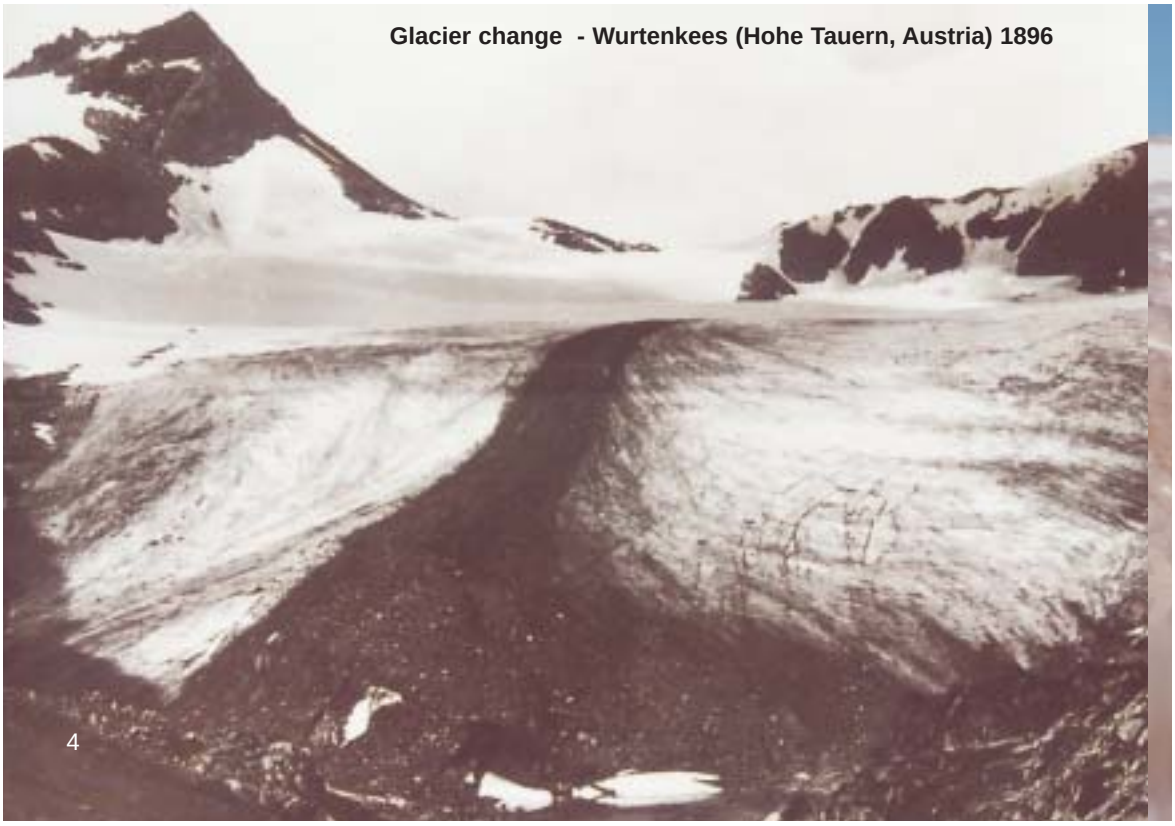
Extreme weather conditions such as regional droughts, avalanche and flood disasters are considerably increasing.

Changes in temperature could also bring about a higher incidence of pest infestations in agriculture and forestry and an increase in diseases as well as a spreading of pathogenic organisms into regions not affected so far (e.g. malaria).

One of the main causes of climate change is the steadily increasing emission of greenhouse gases. The most important of them in terms of quantity is carbon dioxide (CO_2). About two thirds of the considerable increase of the CO_2 concentration in the atmosphere are caused by the combustion of fossil fuels, the rest is due to the destruction of tropical forests.

The Kyoto Protocol

The international community adopted the Kyoto Protocol to the United Nations Framework Convention on Climate Change in 1997. The industrialised countries have committed themselves in this protocol to reduce or confine the emissions of six greenhouse gases compared to 1990 by 2008/2012. In the framework of this agreement Austria undertakes to reduce its emissions by 13 % compared to the year 1990 by 2008/2012.



Glacier change - Wurtenkees (Hohe Tauern, Austria) 1896

Emissions Trends in Austria

According to the Austrian Federal Environment Agency 77.6 million tonnes carbon dioxide equivalent of greenhouse gases were emitted in Austria in 1990. This figure includes the actual CO_2 emissions as well as the emissions of five other gases "converted" into carbon dioxide equivalent on the basis of their global warming potential.

These gases are methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6) hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). According to the Kyoto Protocol Austria must have reduced its greenhouse gas emissions to a maximum of 67.5 million tonnes of carbon dioxide equivalent by 2008/12.

Austria's carbon dioxide emissions amounted to 66 million tonnes in 2000, which is a 83% share of total greenhouse gas emissions. Methane emissions accounted for 12% of emissions and showed a clearly declining trend during the 1990ies. Until the year 2000 the annual emissions increased by 2.7 % to 79.7 million tonnes. In particular the development in the field of transport is very problematic. The share of transport-related greenhouse

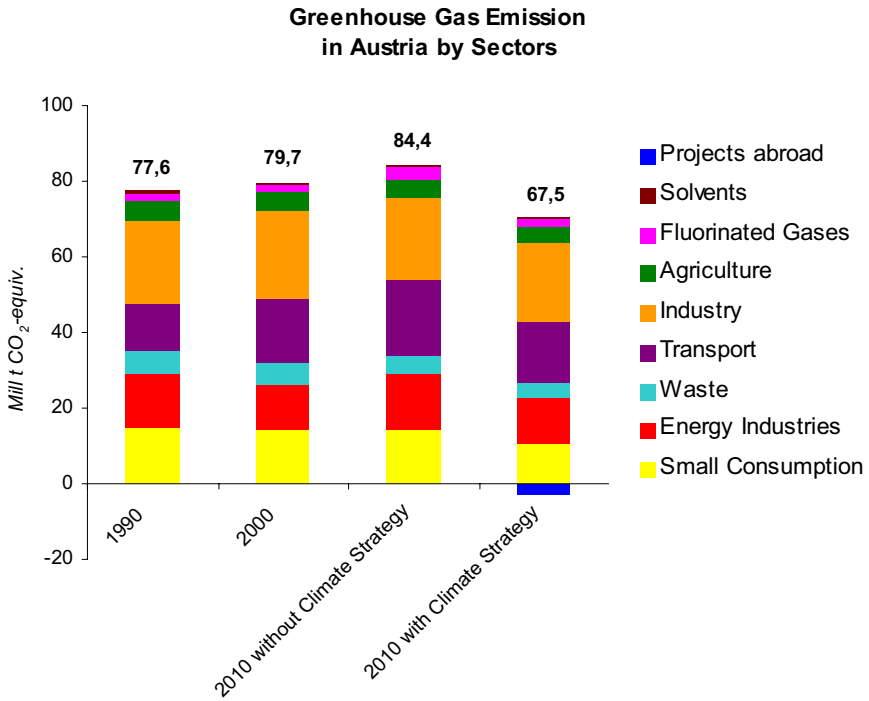
Wurtenkees (Hohe Tauern, Austria) 2001

gas emissions showed an increase from 16% in the Kyoto base year to 22% according to latest inventory data.

A downward trend in the level of emissions has been recorded in the sectors energy industries, waste management and agriculture.
Further major contributors are small consumption (esp. heating demand) as well as industry, both showing relatively stable or slightly growing emissions.

Scientific expert opinions proceed from the assumption that emissions will continue to be slightly rising, if no additional countermeasures are taken.

The emissions of greenhouse gases per inhabitant in Austria amounting to 9.86 tonnes are about average within the EU, but considerably below the level of extra-European industrialised countries. In the course of the last 10 years the per capita emissions decreased by 2 %. In relation to the gross domestic product the emissions were even reduced by 20 %.



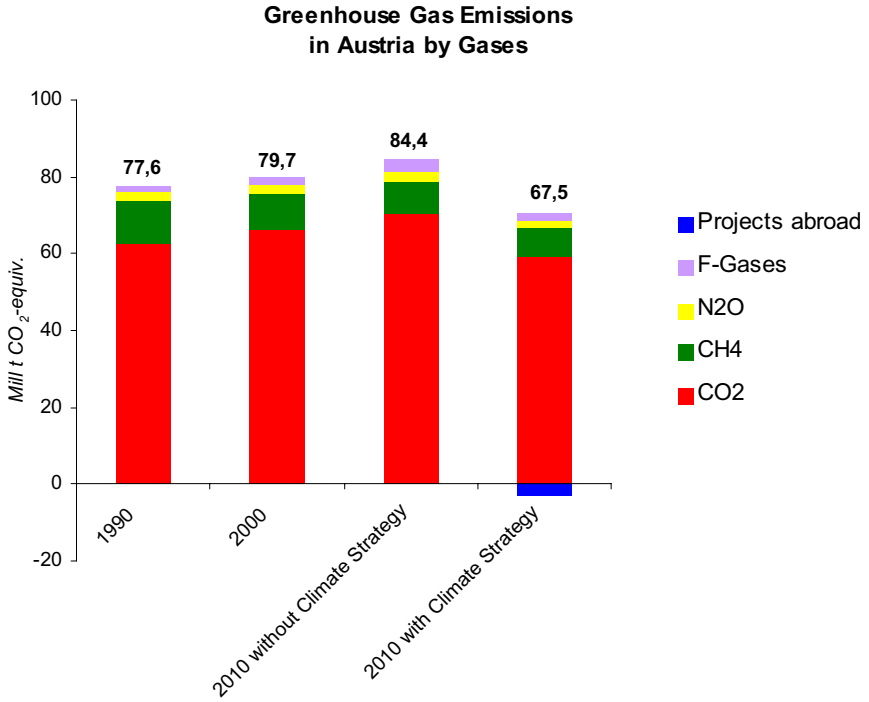
National Climate Change Mitigation Programme

On June 18, 2002 the Austrian Federal Government adopted a climate change mitigation programme. It contains a package of measures from all relevant sectors: energy supply, energy demand in buildings, industry, transport, agriculture, forestry, and waste management. It includes a broad range of regulatory and economic measures, from public subsidies and investments to demonstration projects and information campaigns.

As a number of measures fall within the competence of the Federal Provinces the Governors of the Federal Provinces also took an affirmative decision on the package of measures on October 16, 2002.

A 2001 study commissioned by the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management reveals that the implementation of the climate strategy stimulates the economy on the long run.

In the course of the next ten years not only lower CO_2 emissions, but also additional investments, decreasing energy expenses, 20,000 to 25,000 new jobs, and a contribution to the reduction of the net deficit as a result of additional technology investments can be expected.



What has been done so far

In the course of the last few years the Federal Government and the Federal Provinces have taken a lot of initiatives to increase the energy efficiency in Austria and to promote the use of renewable energy sources. Some examples:

Subsidies by the Federal Government
Climate change is the main priority within the framework of the Environment Fund of the Federal Government. Climate change-related subsidies increased from 40 million Euro in 2001 to 57 million in 2002.

Subsidies by the Federal Provinces
The Federal Provinces have launched subsidisation programmes in the fields of new construction of residential buildings and modernisation and refitting of the buildings stock, including special subsidies for renewable fuels for heating and hot water.

Buildings The energy-related standards for buildings established by the Federal Provinces are permanently improved and thus the energy demand is reduced.

"Green" electricity The Law on "Green" Electricity stipulates for 2002 standard minimum feed-in tariffs for the whole Federal Republic of Austria for electric power from wind, photovoltaics, biomass, geothermal and small-scale hydroelectric power stations. It contains also a binding provision on the rise of the share of "new" renewable energy sources to reach 4 % of electricity supply by January 1, 2008. Small-scale hydroelectric power stations shall account for at least 9 %. The target is to raise the total share of renewable sources in the overall generation of electric power from currently 70 % to 78 % (including large hydro).

Agriculture The Austrian Agri-Environmental Programme (ÖPUL) provides for a special subsidisation of agricultural production methods compatible with the requirements of the protection of the environment. Moreover, there is an additional subsidisation programme for "Energy from biomass and other alternative sources".

Cars The labelling of new passenger cars with respect to their CO_2 emissions per kilometre has been made obligatory.

Charges Since 1996 energy charges on natural gas and electricity have been levied in addition to already existing mineral oil taxes. The revenues from these charges are partly earmarked to energy saving and environmentally benign measures. As far as passenger cars are concerned the registration tax is linked to fuel consumption.

Tax Starting with 2001 the motor vehicles tax for trucks has been raised by 50 % on average and this tax will be applicable until the introduction of a mileage-based road pricing in 2004.

Waste The separate collection of packaging waste, of bio waste and the deposit system for cooling appliances contribute to a reduction of greenhouse gas emissions.

Landfills From 2004 onwards, in some Federal Provinces from 2008 onwards, the landfilling of untreated residential waste will be prohibited. This will dramatically reduce emissions of methane gases on landfills.

The Federal Provinces have partly developed their own climate change programmes. These programmes supplement the national strategy and put it into more concrete terms according to specific regional aspects.

Heating and Hot Water

More comfort - less emissions

A large part of CO_2 emissions can be assigned to heating and hot water preparation in buildings. Taking into consideration the temperature-dependent variations, emissions of greenhouse gases have remained relatively stable in the period from 1990 to 2000 at about 13 million tonnes annually in spite of the considerable increase in the number of dwellings (+ 12 %).

The Austrian Institute of Economic Research expects that if this trend will be continued the emissions rates will remain approximately at the same level until 2010.

However, by means of targeted measures they could be considerably reduced. The "buildings programme" of the climate strategy is thus destined to bring about a reduction of 4 million tonnes carbon dioxide equivalent in this sector compared to the predicted trend.

In order to achieve this goal comprehensive measures are planned: refitting of buildings according to thermal aspects, increase in the efficiency of heating systems, conversion to "lower CO_2" and renewable fuels as well as the connection to existing or new district heating systems which are to be developed

Catalogue of measures

Heating and hot water

Subsidies

- Further improvement of federal subsidies for biomass district heating particularly in rural regions (more than 600 systems already do exist)
- Better conditions with respect to the subsidisation of the refitting of residential buildings according to thermal-energetic aspects
- Financial incentives to energy saving measures and to the use of renewable fuels in the new construction of residential buildings

Heating systems

- Modernisation and efficiency increase, promotion of the conversion to renewable energy sources, extension and training of plumbers and chimney sweepers, incentives by subsidisation, compulsory periodical efficiency measurements

Building ordinances

- Adaptation of energy-related requirements, introduction of energy codes and certificates for buildings

Third Party Financing

- Energy saving measures in public and private service buildings, via third party financing ("Contracting")

Electricity and Heat Generation

"Green" electricity as a chance for the future

Currently about 70 % of electricity in Austria is generated from hydroelectric power. Thus Austria ranges, as far as this "climate-friendly" kind of energy generation is concerned, among the top countries at international level.

The emissions from caloric electricity and district heating generation are subject to considerable weather-related variations. Due to the high rate of utilisation of hydroelectric power capacities the level of emissions in recent years has stabilised considerably below the level of 1990. In order to meet the ambitious target of the climate strategy it is necessary to improve framework conditions for an increased use of renewable sources and energy-efficient combined heat and power technology, as well as to take measures to reduce electricity consumption.

The new Law on "Green" Electricity, which was adopted by the Austrian parliament in summer 2002 already paves the way for measures oriented according to this direction.

Catalogue of measures

Electricity and heat generation

“Green” power and heat

- Implementation of the Law on "Green" Electricity which stipulates binding goals for the development of energy generation from wind, photovoltaics, biomass, and geo-thermal as well as small-scale hydroelectric power stations (4 and 9 %, resp.)
- Reorganisation of the system of guaranteed feed-in tariffs (common regulation for all provinces, inclusion of combined heat and power)
- Extension of subsidisation measures of the Federal Government and the Federal Provinces for heat generation from biomass

Public Buildings

- Exploitation of electricity saving potentials in public buildings (Federal Government, Federal Provinces, communities) by internal measures as well as by third-party financing ("contracting")
- Preferential purchase of electric power from "renewables" for the supply of public buildings

EU emissions trading

- Emission ceilings for caloric electric power and heat generating plants within the framework of EU-wide trade in greenhouse gas emissions.

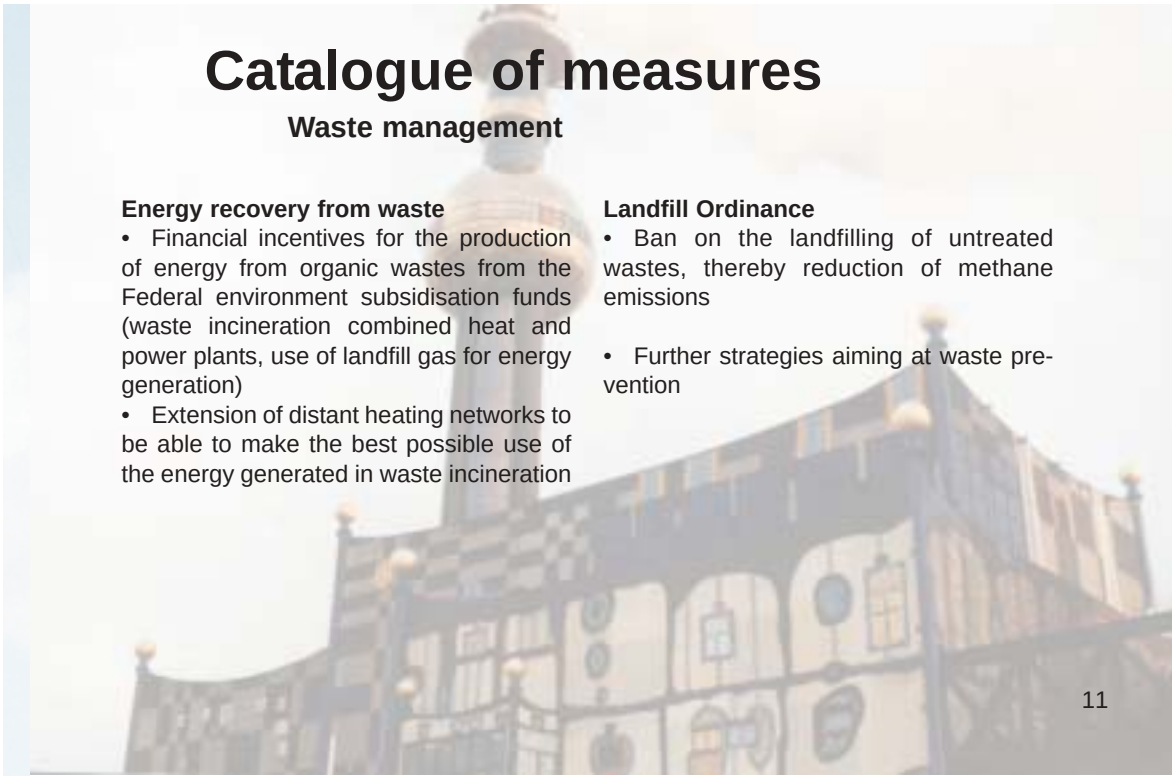
Waste Management

Lower emission rates in spite of growing amounts of waste

The waste management sector is the main polluter with respect to methane emissions. For ten years the sector has been reporting significantly decreasing methane emission rates although the amounts of waste generated have been increasing. In 1990, the volume of waste amounted to 6.2 million tonnes, in the year 2000 it was 5.2 million tonnes CO_2 equivalent. This positive development is due to increasing recycling rates (mainly of paper), to the collection of biodegradable wastes, to the increase in waste incineration, and to the better collection of landfill gases.

The implementation of the Landfill Ordinance, which is to enter into force in 2004 (in a few exceptional cases in 2008), will lead to a further substantial reduction of methane and CO_2 emissions. From that time onward exclusively incinerated wastes or wastes that have undergone a mechanical-biological pretreatment will be permitted to be landfilled.

The largest reduction potential with respect to greenhouse gas emissions is offered by waste incineration in facilities where at the same time heat and power are utilised. In this way it will be possible to reduce greenhouse gas emisions from waste management by another more than one million tonnes CO_2 equivalent by 2010.



Catalogue of measures

Waste management

Energy recovery from waste

- Financial incentives for the production of energy from organic wastes from the Federal environment subsidisation funds (waste incineration combined heat and power plants, use of landfill gas for energy generation)
- Extension of distant heating networks to be able to make the best possible use of the energy generated in waste incineration

Landfill Ordinance

- Ban on the landfilling of untreated wastes, thereby reduction of methane emissions

- Further strategies aiming at waste prevention

Transport

Most problematic sector: mobility

In the period of 1990 to 2000 CO_2 emissions from the transport sector reached 16.9 million tonnes, that is an increase by 5 million tonnes. It is not expected that this trend will reverse in the near future. Reductions in other fields are severely frustrated by the negative development in the transport sector.

Current social and economic trends indicate that the demand in transport services will continue to rise, especially in road transport. According to current forecasts transport-related greenhouse gas emissions will by 2010 have increased by more than 7.5 million tonnes CO_2 equivalent-compared to the year 1990 (not including international air transport), if no additional measures are taken. However, consistent implementation of the climate strategy will enable the reduction of emissions by approximately 3.7 million tonnes compared to the projected trend until 2010.

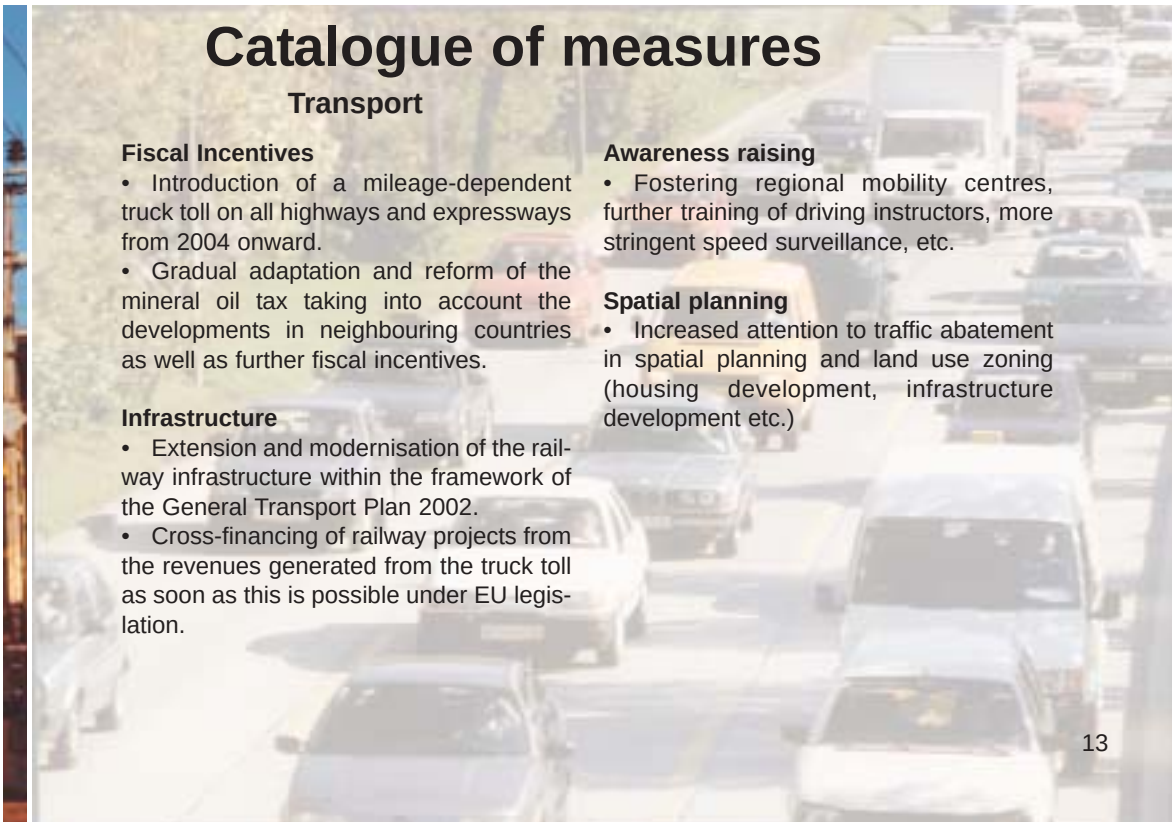
The intricate structure of the transport issue requires economic and infrastructure measures on national level as well as initiatives taking account of specific local and regional requirements.

The latter include awareness raising just as much as the long-term re-orientation of spatial planning and infrastructure development.

Especially in the transport sector the framework conditions established by the European Union are of high importance. This holds true in particular with a view to the upcoming EU enlargement because it must realistically be expected that this will lead to a rising traffic volume.

In order to reach the climate protection target in the transport sector it is also indispensable to gradually improve fair and balanced pricing, taking into account also the costs related to environment, health and accidents.

Actual costs structure for goods transportation on roads does not sufficiently reflect (external) damages caused by trucks. Mileage-based road tolls will significantly improve cost-coverage and reduce demand for road transport services.



Catalogue of measures

Transport

Fiscal Incentives

- Introduction of a mileage-dependent truck toll on all highways and expressways from 2004 onward.
- Gradual adaptation and reform of the mineral oil tax taking into account the developments in neighbouring countries as well as further fiscal incentives.

Infrastructure

- Extension and modernisation of the railway infrastructure within the framework of the General Transport Plan 2002.
- Cross-financing of railway projects from the revenues generated from the truck toll as soon as this is possible under EU legislation.

Awareness raising

- Fostering regional mobility centres, further training of driving instructors, more stringent speed surveillance, etc.

Spatial planning

- Increased attention to traffic abatement in spatial planning and land use zoning (housing development, infrastructure development etc.)

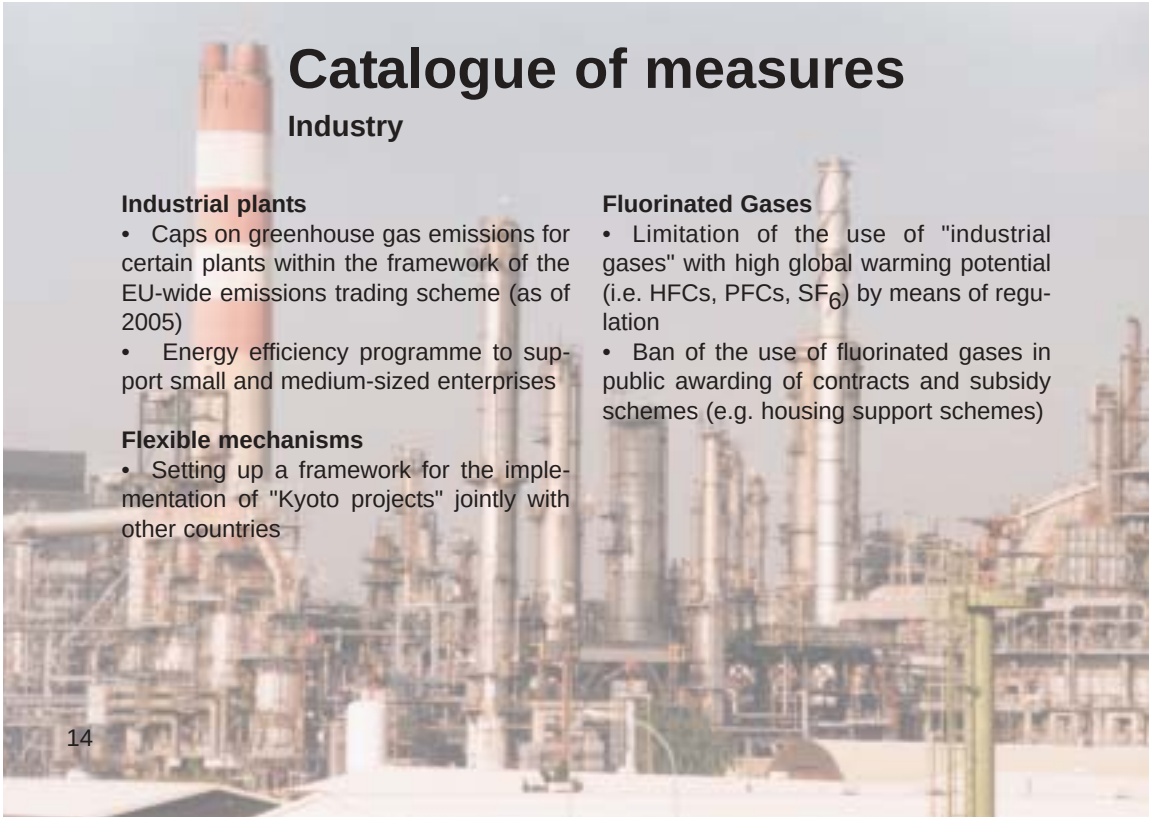
Industry and Trade

Decoupling economic growth from energy consumption

Between 1990 and 2000 greenhouse gas emissions from industry and trade increased slightly. After the slackening of the economic activity in the early nineties, which was responsible for a reduction in emissions, a marked increase has been observed especially since 1997, partly as a result of strong economic performance. Nevertheless industries have managed to decouple production growth from energy consumption.

The measures planned within the framework of the climate strategy aim at a reduction of emissions by 1.25 million tonnes CO_2 equivalent as compared to the current trend. Especially in times of economic upswing it is important not to neglect taking measures to promote energy efficiency - and consequently also to enhance productivity.

What is needed is a combination of economic instruments, regulatory measures and environment subsidisation in order to support the application of efficient technologies as well as the enhancement of research and development.



Catalogue of measures

Industry

Industrial plants

- Caps on greenhouse gas emissions for certain plants within the framework of the EU-wide emissions trading scheme (as of 2005)
- Energy efficiency programme to support small and medium-sized enterprises

Flexible mechanisms

- Setting up a framework for the implementation of "Kyoto projects" jointly with other countries

Fluorinated Gases

- Limitation of the use of "industrial gases" with high global warming potential (i.e. HFCs, PFCs, SF_6) by means of regulation
- Ban of the use of fluorinated gases in public awarding of contracts and subsidy schemes (e.g. housing support schemes)

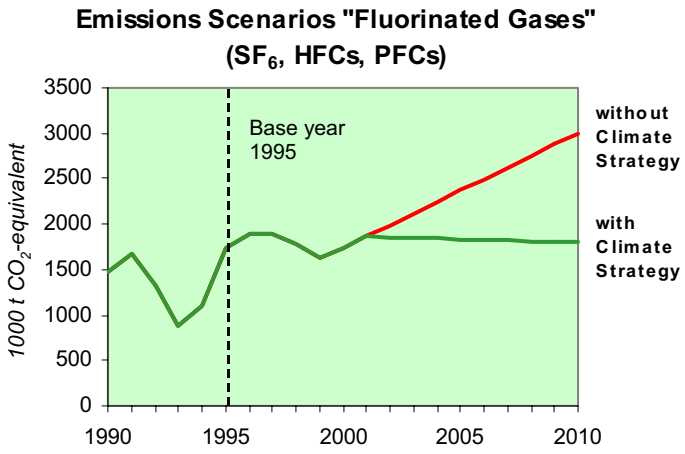
Fluorinated Gases

Reduction of gases with high global warming potential

The term "fluorinated gases" refers to three synthetic gases that have a particularly high global warming potential: sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs) and perfluorinated hydrocarbons (PFCs). The emissions of these gases rose from approximately 1.5 million in 1990 to about 1.7 million tonnes CO_2 equivalent in 2000.

In the absence of mitigation measures this trend will accelerate over the next few years. This is mainly due to the heavily growing use of HFCs as cooling agents in refrigerators and freezers, in air-conditioning systems and for insulation materials and construction foams, a result of the fact that HFCs are to an always higher degree used as substitutes for the ozone-depleting chlorofluorocarbons (CFCs) which have been banned in Austria and in most other industrialised countries.
However, there are already alternatives to most types of use, for the greater part at conditions not affecting competitiveness. A dramatic reduction of the emissions of halogenated gases can best be achieved by regulatory measures.

The medium-term target is therefore a far-reaching ban on HFCs, PFCs and SF_6. For some uses, transitional periods are required. Moreover, a further and/or early reduction of emissions can also be achieved by means of recycling programmes and support activities, climate-friendly awarding of contracts and subsidy policies of the regional and local authorities - including housing support schemes of the provinces.



Agriculture and Forestry

Organic farming and biomass

The agricultural sector showed a substantial reduction in emissions between 1990 and 2000. Methane and nitrous oxide emissions in total dropped from 5.6 to 4.8 million tonnes CO_2 equivalent.

The two main causes of this development are the strongly promoted conversion of agricultural holdings to production methods in line with environmental requirements and the reductions in livestock numbers and agriculturally used areas.

According to the climate strategy with enhanced efforts another reduction potential of 0.4 million tonnes CO_2 equivalents can be exhausted until 2010.

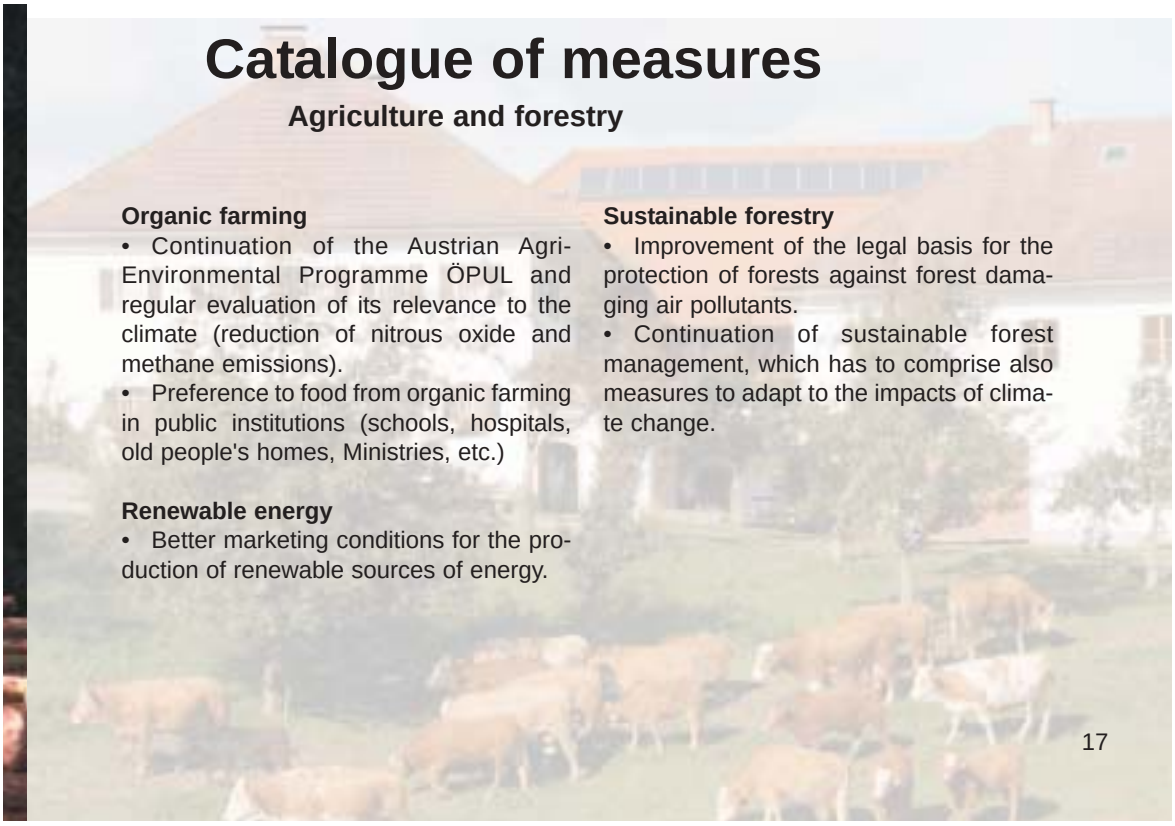
Domestic agriculture makes a vital contribution to climate protection also in its role as provider of renewable resources for energy production. In the buildings, energy generation, industry, and transport sectors more than 2 million tonnes of CO_2 can be saved by the uses of biomass, biogas and liquid bio fuels provided by agriculture.

Forestry
Also forestry is of high relevance to the climate system. Due to their CO_2-absorbing effect ("sinks") sustainably managed forests play an important role in the global carbon cycle.

Austria's forested area has been continuously rising, but climate change-induced-draughts or storms could have a negative impact on the sink capacity of forests.

It has been a guiding principle of Austrian forest management policy since more than 100 years to use forests in an economically sustainable manner balancing the relevant ecological, economic and social functions.

As a consequence - and of course also due to natural conditions - Austria is one of the European countries with the highest density of forests. Today, nearly 47% of the country is covered with forests.



Catalogue of measures

Agriculture and forestry

Organic farming
- Continuation of the Austrian Agri-Environmental Programme ÖPUL and regular evaluation of its relevance to the climate (reduction of nitrous oxide and methane emissions).
- Preference to food from organic farming in public institutions (schools, hospitals, old people's homes, Ministries, etc.)

Renewable energy
- Better marketing conditions for the production of renewable sources of energy.

Sustainable forestry
- Improvement of the legal basis for the protection of forests against forest damaging air pollutants.
- Continuation of sustainable forest management, which has to comprise also measures to adapt to the impacts of climate change.

Market-based Measures - Higher Cost Effectiveness

The climate strategy also provides for the application of economic instruments. They are to enhance cost effectiveness of greenhouse gas mitigation in companies and for the whole economy. A separate programme for the project-related Kyoto mechanisms "Joint Implementation" and "Clean Development Mechanism" is due to start as from 2003.

Joint Implementation
"Joint Implementation" makes it possible for a country or company to curb greenhouse gas emissions by means of projects that are implemented in other industrialised countries. Emissions that have been avoided are - at least partly - taken into account for the donor country. In this context, Austria will above all make use of its good economic relationships with Central and Eastern European countries.

Clean Development Mechanism
The Clean Development Mechanism comprises the implementation of climate protection projects in developing countries that render possible a more environmentally friendly development. They require the approval of the recipient country to ensure that they will neither produce nega-

tive ecological effects nor disturb sustainable development.

Also other market-based instruments will make contributions to meet the Kyoto target:

Emissions trading scheme
As from 2005 a compulsory scheme on greenhouse gas emissions trading will be introduced in the EU.
Industrial and energy-generating enterprises will have to take over plant-specific emission caps.

Green tax reform
A revenue-neutral green tax reform can support the achievement of Austria's Kyoto target at low economic costs. Therefore, a socially balanced green tax reform is planned to be introduced step by step until 2005.

I M P R I N T

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