Undergraduate Program in Central European Studies

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Environmental Policy in the Central European Context

Time: Tuesday 10 am
Location: Coffee Heaven, Můstek

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See also: http://home.cerge-ei.cz/richmanova/TeachingUPCES.html
(and http://home.cerge-ei.cz/ortmann/UpcesCourse/UpcesCourse.html for Spring 2009 course)

9 Environmental Policy in the Czech Republic – History and current issues, Part II

Recall the evidence from the literature:

INTERVENTIONIST SOLUTIONS:

Plott (1983)

the MOST efficient: the **permits** policy > **taxes** > **standards** > the **unregulated** market is the LEAST efficient

Plott 1982, p. 107: "The standards approach is the one found most frequently in application. The current air pollution policies are a good case in point."

Porter et al (2009, p. 190) *"Among economists at least, the use of tradable emission allowances under an aggregate emission cap is generally considered a mature policy technology. It has become the default policy option in controlling a variety of large scale air emissions and is being increasingly considered for replacing inefficient sourcespecific regulation of water pollutants (Tietenberg, 2002). The same policy technology is also being used in fisheries regulation and elsewhere (National Academy of Sciences, 1999). In a competitive emissions market with low transaction costs, the initial allocation of rights will not affect the final use of the allowances. However, how the rights are allocated can have significant economic consequences through their effect on the entry and exit decisions and marginal tax rates (Goulder et all 1999)."*

Tradable emission permits ("allowances")

- Polluters with high abatement costs have incentives to buy them
- Polluters with low abatement costs have incentives to sell them
- In the aggregate the number of permits is determined by a desirable standard of pollution (as in the standards policy)
- Important design issues for such permit markets:
    - How to endow firms (consumers) with permits?
    - How to minimize the transaction costs?
- in absence of transaction costs, no efficiency losses, "only" distributional concerns
    - in presence of transaction costs, "cost-effectiveness" is compromised
    - What are the consequences of particular transaction costs / endowments

NON-INTERVENTIONIST SOLUTIONS:

Experimental evaluation of Coase's Theorem:

Hoffman & Spitzer (1982)

- the results provide strong support for Coase's proposition that agents will bargain to a joint-profit- maximizing outcome when it exists in 2- and 3-party bargaining situations under full information and when one party has the right to make the decision unilaterally under limited information.

Harrison & McKee (1985)

- strong support for the Coase Theorem
- In the absence of transferable property rights the parties will not choose the joint payoff maximum
- The establishment of joint property rights increases the number of joint maximum payoff outcomes.
- The establishment of unilateral property rights increases the number of joint maximum payoff outcomes.

VOLUNTARY PROGRAMS:

Cason, Gangadharan (2002)

- a market with incomplete information (about the environmental quality of the good) and consumers that care for environment
- no signaling, no reputational concerns => market failure
- various treatments to remedy the market failure:,
- (costly) **certification** ("eco-label") > seller **reputation** > **cheap talk** signals (when looking at the quality provision, there are some efficiency costs of certification)
- laboratory results suggest that government regulators or non-governmental organizations can improve environmental performance by providing the option of certified green labeling

Potoski, Prakash

- joining ISO 14001 (a voluntary "club" program, setting standards of conduct for its members) improves environmental preformance

Evans et al.

- Voluntary programs … one the hand …
- On the other hand … mandatory information disclosure programs such as The EPA's Toxics Release Inventory (TRI)
- Mandatory information disclosure programs require that the firm report information that could be damaging … (e.g., reputationally).
- Reporting, while being done on the firm level to EPA etc., is initiated within firms by individuals… clearly, that means there is all kinds of potential for moral and other dilemmas.
- Do firms report?
- Old Government Accountability Office data from 1991 suggest that about one third of firms that should have reported did not, Intentionally or unintentionally (they did not know)

Recall major issues in the CR after 1989

- orientation towards heavy industry (metallurgy, steal, coal carbonization, heavy chemical industry) + brown-coal fired plants+ strip mining + socialist farming (excessive use of fertilizers and chemical pest control)
    - ⇨ high water and air pollution
    - ⇨ soil pollution, danger of (water and wind) erosion
    - ⇨ bad health of forests
    - ⇨ low investment into environmental protection
    - ⇨ waste management issues (illegal landfills)
- in early years of democracy (founding and implementation periods)
    - ⇨ reorientation of production (many environment intensive sites closed, illegal landfills closed)
    - ⇨ high investment into environmental protection
    - ⇨ new regulations
    - ⇨ water treatment plants, sewer systems built, purification devices in power plants and other polluting facilities, gas pipelines installed
    - ⇨ substantial drop in major water and air pollutants (as big reduction as possible in the shortest possible time)
- last years (pre-accession and EU membership)
    - ⇨ no significant improvement, stabilization
    - ⇨ convergence of environmental law
    - ⇨ persisting problems
        - soil pollution and bad health of forests
        - sewer systems and WTPs still missing in towns of 2,000-5,000 inhb. (by 2010?)
        - waste management (compared to most European countries, the % of waste deposited in landfills is still quite high in CR ☹)
        - transportation, still growing, keeping emissions of NOx and PM_{10} still high
        - levels of specific carbon dioxide emissions per capita and year still exceed both the OECD average and the EU15 average, Kyoto protocol target satisfied, though
        - noise
        - landscape fragmentation, high number of endangered species

PART II – Instruments of environmental protection in CR

Organization and Institutional Arrangement to Environmental Protection in CR

- **Ministry of the Environment**
  - The foundation of the Ministry of the Environment on 1 January 1990 was a fundamental change in the institutional and organization arrangement of the environmental protection in the Czech Republic.
  - On 1 August 1990 the Ministry of the Environment became responsible also for the protection of Agricultural and Forest land Fund, geological survey, protection of mineral resources and environmental supervision over mining. At the same time the Ministry ceased to be responsible for water and sewage piping systems.

Structure of the state administration in environmental areas as of 1 January 2005

Professional support to public administration of the environment protection

The following supporting institutions operate (or have operated over the past 15 years) within the environmental section:

1) CENIA, Czech Environmental Information Agency (http://www.cenia.cz), former Czech Environmental Institute (CEI) – until 1990 the Rationally Experimental Laboratory (REL), transformed to the Centre of Environmental Information. The CEI was established on 1 April 1992 and became the main environmental information centre in the Czech Republic. The Centre also published the Statistical Yearbook of the Environment of the Czech Republic, a joint publication of the environmental sector and the Czech Statistical Office. The Czech Environmental Institute was also active in areas not supported by other research institutions of the environment (environmental economy and environmental education). CENIA was established on 1 April 2005 on the basis of the CEI. The objective of CENIA is to form and administer the departmental system to develop environmental information, continuously monitor and identify information needs and evaluate information within the Unified Information System on Environmental Issues). A part of CENIA is also the Agency for Integrated Prevention, active in the area of industrial ecology pursuant to the Act on Integrated Prevention. A specific information source provided by CENIA is the Integrated Pollution Register.

2) Czech Hydrometeorological Institute (http://www.chmi.cz), established in 1954, was based on the State Meteorological Institute established in 1919. This institute is active in three main areas – meteorology, climatology, hydrology and air protection. A central forecasting body is part of the institute providing hydrological and meteorological forecast and warning against risks (intensive rainfall, storms, floods, etc.) The institute also administers a network of stations for metering the amount and quality of surface and groundwater, it administers the network of Automatic Pollution Monitoring, Emission and Air Pollution Sources and climatological and hydrological databases. The institute interprets the results of metering and monitoring and coordinates scientific and research activities. It has good international relations (UN ECE, EC, EEA) which are further developed. The Institute has its headquarters in Prague and branch offices in 5 regional cities (Usti nad Labem, Plzen, Hradec Kralove, Brno, Ostrava).

3) Water Research Institute of T. G. Masaryk (http://www.vuv.cz) was established as the State Hydrological Institute in 1919. The Water Research Institute is a state allowance organisation established by the MoE. Its objective is to provide methodology, consulting and coordination services to the public administration of water protection and management based on target research into water management. In 2002 the Institute started to deal with research, development and evaluation of analytical or technological methods of waste management and efficiency of waste treatment with respect to the environment. This agenda became part of a separate organisation – Waste Management Centre (CeHO).

4) The Silva Tarouca Research Institute for Landscape and Ornamental Gardening http://www.vukoz.cz) is an allowance organisation of MoE with more than 70-year old history. It deals with research, development and application of methods for landscape protection and formation, especially the role ornamental gardening in landscape management. The institute also solves projects of complex revitalisation of important parts of the landscape in order to preserve its cultural and natural heritage, evaluation and use of the plant gene pool and is interested in research into renewable energy resources including its production and use.

5) Agency for Nature Conservation and Landscape Protection of the Czech Republic (http://www.nature.cz), was established in 1995 on the basis of State Institute of Nature Conservation which was divided into the Administration of the Protected Areas of the Czech Republic (since 2004 the Nature Conservation Authority, an important control body of national nature conservation) and the Agency for Nature Conservation and Landscape Protection of the Czech Republic. Agency is an expert institution of the national nature conservation established by the MoE, providing methodology, documentation, information, education, scientific research and consulting of nature conservation and landscape protection of the Czech Republic. The Agency creates and maps NATURA 2000, administers the Central Register of Nature Conservation, complies with the obligations of the Czech Republic under the Convention on International Trade in Endangered Species and provides protection and care of caves in the Czech Republic.

6) Czech Geological Survey (http://www.cgu.cz), originally the State Geological Institute of the Czechoslovak Republic, was established in 1919. It is a state allowance organisation and a research institute of the MoE. The organisation collects and processes data on geological structure of the territory, submits the data to administrative bodies for political, economic and environmental decisions. CGS administers the geological information portal (http://www.geology.cz) which serves as the main gateway to geological information of the Czech Republic. CGS is a member of international geological organisations such as EuroGeoSurveys, FOREGS and ICOGS.

7) The Czech Geological Survey – Geofond (http://www.geofond.cz) came into existence gradually from the archives of the research reports, assessments, documentation and maps of the Central Geological Institute in Prague. As a subject, the so-called "Geological Fund" was established in 1952. On 1st January 1975 it was constituted as an independent organisation. The Geofond performs a function of archive, documentation, information and study centre of the State Geological Service in the Czech Republic. It has the head office in Prague and two branch offices in Brno and Kutna Hora.

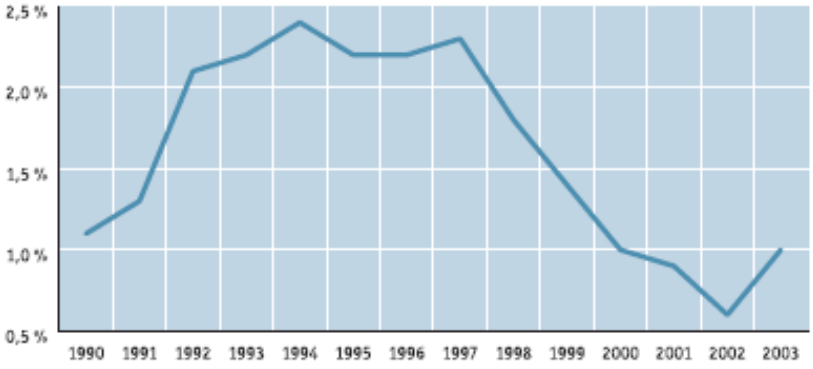
All these institutions partidpate in the development of the Unified Information System on Environmental Issues.

Financing of environmental protection

- after 1989 the state of the environment could not have been improved without a significant increase in the funds spent
- after 1998 the amount of funds was reduced, as the most important environmental problems have been solved (or at least improved substantially)

Graph 5.1 Total investment in environmental protection/GDP

The unusual height of investments in the 1990s was especially influenced by the legal deadline of the end of 1998, by which the operators of all the large and medium-size sources of air pollution had to achieve tighter emission limits. Within the scope of this all power plants and large heating plants were dusted off and desulphurised. Such high investments, concentrated in a couple of years, will never be repeated again. At the beginning of the current decade the Czech Republic got into a stage when all relatively „cheap" measures had been realised and every other improvement was markedly more expensive (the cost curves moved into a non-linear area).

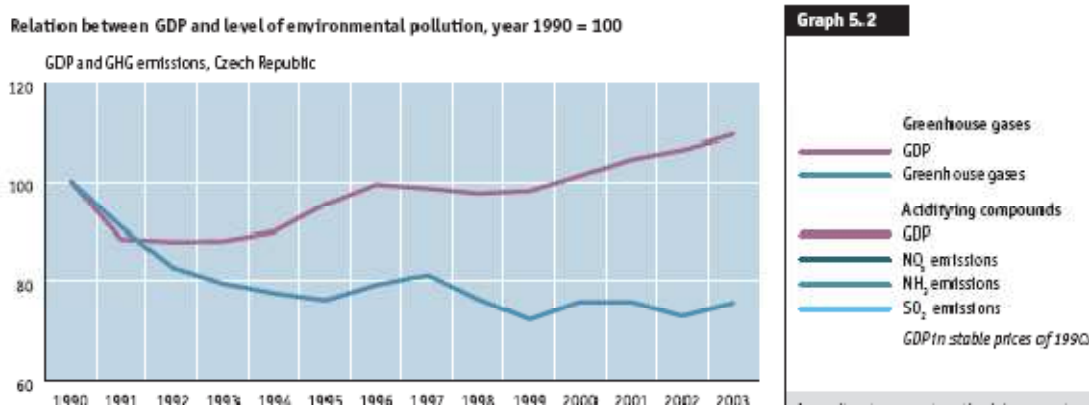


Source: Czech Statistical Office (CSO)

Table 5.1 Total investments in environmental protection in the Czech Republic (mil. CZK)

Projects	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CR Total	3602	6048	9376	16954	19890	28272	32252	37036	40503	35160	28956	21399	19892	14919	19383
Waste water management	2271	3268	4626	7224	8715	10843	10246	10011	11275	8291	8839	8567	8815	7034	9523
Air and climate protection	692	1688	3187	5755	7876	13489	17886	21475	22323	20141	15762	8407	7057	4149	4179
Waste management	639	1092	1427	3115	2893	3127	2772	3449	4765	4698	2597	2270	1463	1236	2125
Reclamation of land			136	72	109	162	374								
Biodiversity and landscape protection								659	1081	1162	1091	1549	1437	511	405
Reduction of noise and vibrations (apart from workplace protection)				788	297	651	974	567	455	313	241	277	632	365	374
Protection and revitalisation of soil, ground and surface water								875	604	555	426	329	488	1027	2153
Protection against radiation														15	33
Environmental research and development														132	137
Other activities of environmental protection														450	454

Source: CSO



Sources of financing

- **State budget**: subsidies, refundable aids (free loans) and guarantees for commercial credits
- **State Environmental Fund of CR**: its incomes consist of charges for pollution, use of natural resources and from penalties for breaching environmental law; in 1994–1997 SEF was funded by the National Property Fund in the amount of CZK 6.1 billion, which was a share of "small" privatization revenue addressed to the National Clean Air Program.
- The SEF has contributed to the implementation of many environmental protection measures in the form of subsidies, loans and contributions to cover partially the interest accrued. The support is intended for measures according to programs declared annually by the Ministry of the Environment. By now, the fund has supported 11,665 events and projects, spending more than CZK 45 billion, and thus has become an important tool of environmental policy.
- **National Property fund of CR**: focuses on reclamation related to old ecological burdens in privatized companies (dissolved as of December 31 2005)
- **Local budgets** subsidies of municipalities or regions granted continuously (unlike the state program)
- **private investors**

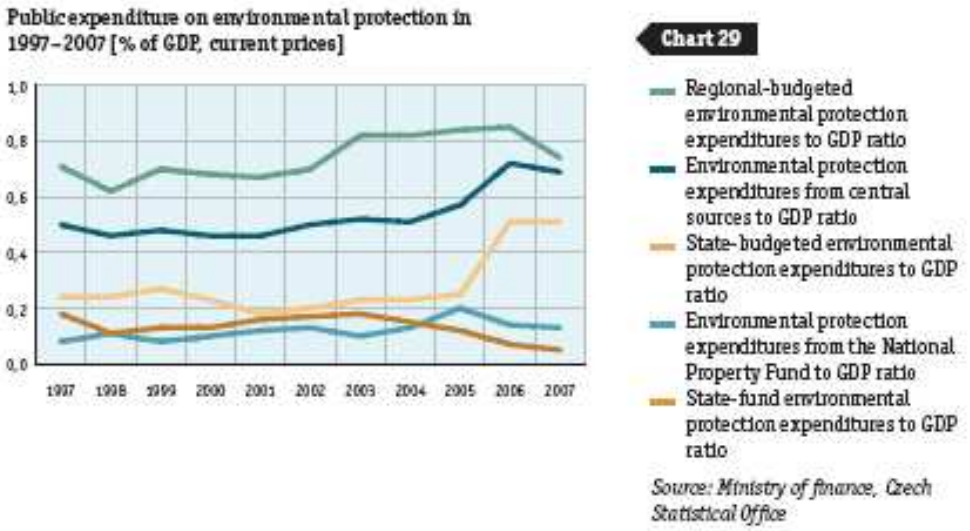
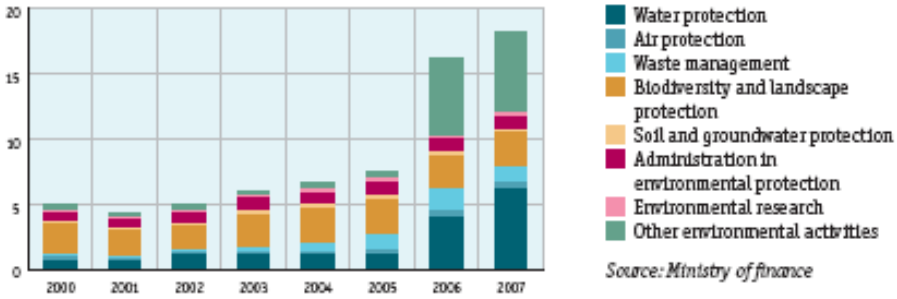


Chart 30

The orientation of state-budgeted environmental protection expenditures from 2000–2007 [billions CZK current prices %]



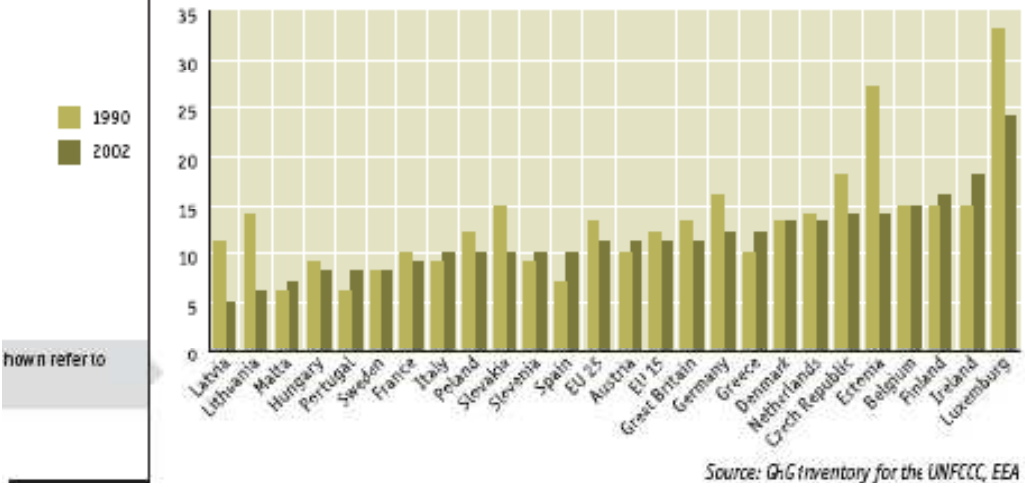
Source: Ministry of finance

International context

- At the end of the 20th century environmental protection became an inseparable component of international relations in the political and economical sphere influencing social and cultural issues.
- The development of the state of the environment in the monitored time period has been positively influenced by the EU-approximation process of the Czech Republic and by the development of multilateral cooperation within international organizations, especially the UN Economic Commission for Europe (UN ECE), the UN Environmental Programme (UNEP), the UN Educational, Scientific and Cultural Organisation (UNESCO), and the Organisation for Economic Cooperation and Development (OECD).
- The Czech Republic became a contracting party of most of important global and regional multilateral agreements and established an effective system of bilateral cooperation with European as well as developing countries.
- It transformed from a country receiving international aid into a reliable provider, including aid in the environmental area.

Graph 4.1

Greenhouse gas emissions in equivalents of CO_2 per capita of the EU15 Member States for 1990 and 2002 (t/capita)

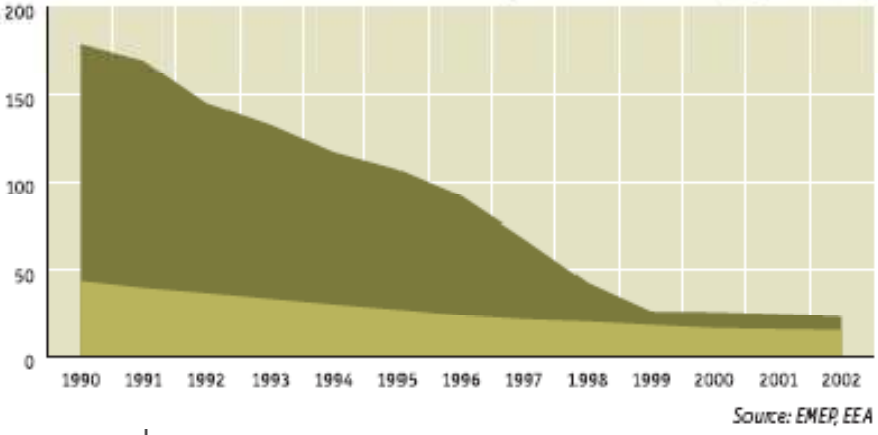


hown refer to

Source: GhG inventory for the UNFCCC, EEA

Graph 4.3

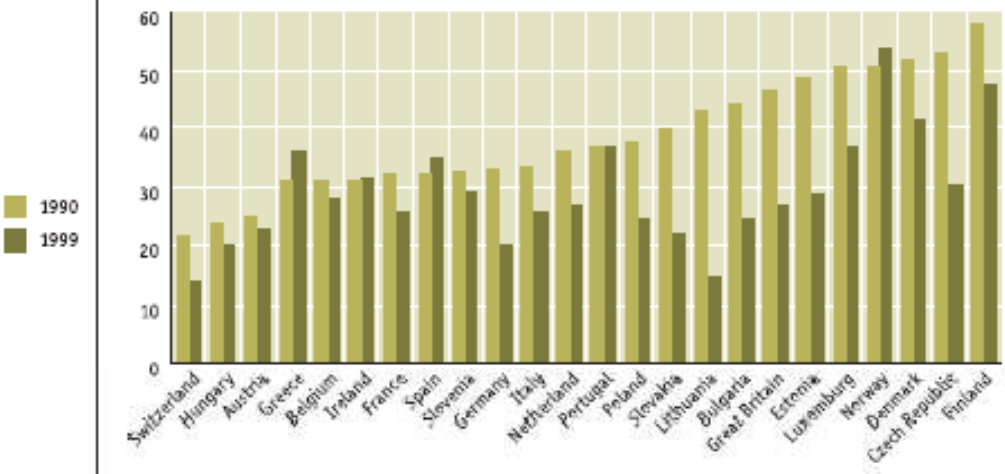
The EU15 and the Czech Republic's emission trends for SO_2 betwee n 1990 and 2002 (kg/capita.year)



Source: EMEP, EEA

Graph 4.5

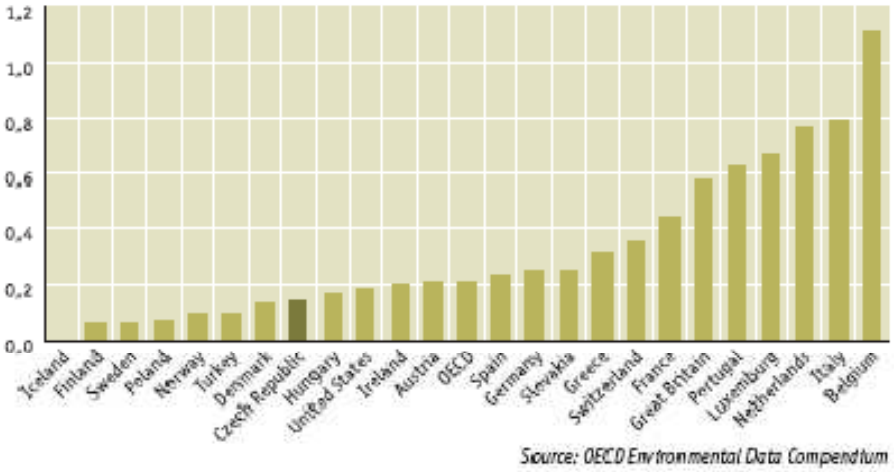
NO_x emissions per capita in selected European countries for 1990 and 1999 (kg/capita.year)



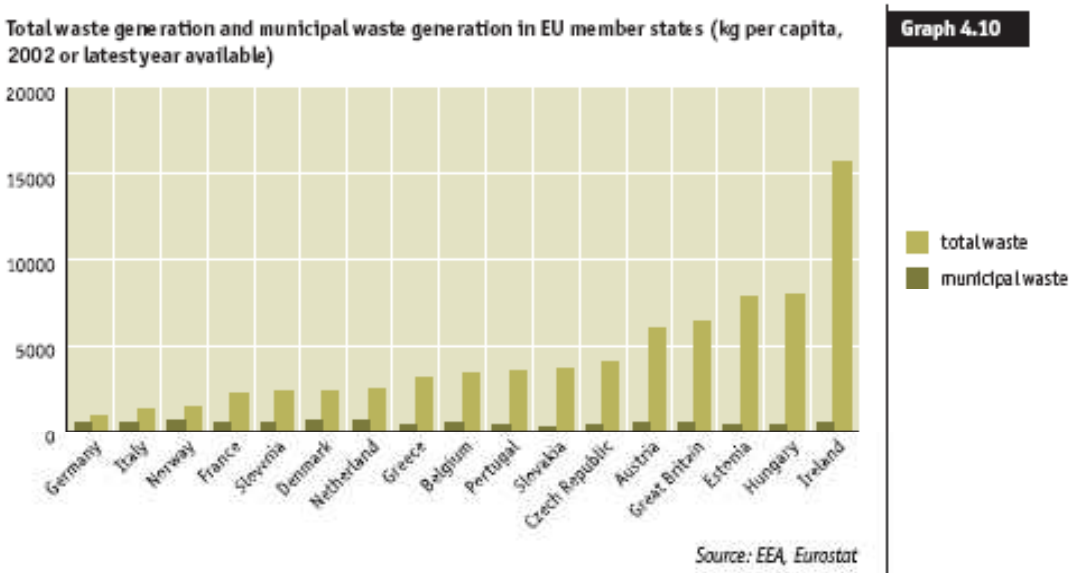
Source: EMEP, EEA

Graph 4.7

Pesticide use (t/km² of arable land) in 2003 or in the latest year available



Source: OECD Environmental Data Compendium



Economic instruments of environmental protection in CR

The protection of nature and the landscape in the Czech Republic uses, above all, the following economic instruments:

- **non-market ("financial") instruments**
  - **positively stimulating**
    - financial subsidies => national subsidy programs + European subsidy programs
    - grants
    - loans
    - tax reliefs
  - **compensatory instruments**
    - financial compensation for losses resulting from the declaration of a provisionally protected area,
    - compensation for aggravating conditions for farming and forestry
    - compensation for some damages caused by selected specially protected animals.
  - **negatively stimulating**
    - fees (e.g. entry fees for cars in national parks)
    - taxes and charges for environmental impacts (e.g. cutting down trees) – "**polluter pays principle**" = inclusion of negative externalities in the costs of the polluter
    - penalties for non-compliance with environmental regulations
- **market ("financial") instruments**
  - trade in greenhouse gas emission allowances (Kyoto protocol)
- **voluntary instruments**
  - eco-labelling
  - responsible care
  - voluntary agreements…
- **access to environmental information**
  - integrated pollution register

Tax relief due environmental protection

- In the early 1990s environmental tax reliefs were only exceptional. The whole system of taxation was rather **unclear,** especially because of the sales tax. This tax consisted of hundreds of rates and was used instead of the VAT and concise taxes (high sales tax imposed on the sale of passenger vehicles and fuels)
- since 1993 exemptions from the road tax for some modes of transport;
- concise tax on fuels
  - ⇨ rates of the sales tax and concise tax on fuels grew only a little between 1989 and 2004 in comparison with consumer price inflation
  - ⇨ international water transportation and environmentally demanding international air transportation exempted from any concise taxes on fuels based on international agreements; domestic air transportation exempted from the concise tax on fuels since 2001 and domestic water transportation since 2004
  - ⇨ lower sales tax rate was applied between 1991 and 1992 and a lower concise tax rate on unleaded petrol between 1993 and 1995; the tax advantage of unleaded petrol was cancelled from 1996 and since 2001 it has not been possible to sell leaded petrol.
  - ⇨ a zero concise tax on biodiesel was applied until 2000.
  - ⇨ a lower concise tax rate has been applied to LPG (liquefied gasses) used as a fuel for vehicles
  - ⇨ until 2003 there was a zero concise tax on CNG (compressed gasses) used as a vehicle fuel; a relatively high concise tax on CNG and substantially increased concise tax on LPG and diesel oil were applied in 2004, and the concise tax on petrol has been increased too.
  - ⇨ economic advantages of more environmentally-friendly fuels in the form of lower concise taxes dropped in 2004 to ca ½.
- exemption from the property tax in case of real estates important for environmental protection;
- reduced VAT (5 %) rate on some environmentally-friendly products (renewable fuels and energy sources and biodiesel), since 2004, all products under lower VAT rate transferred to the basic VAT rate of 22%

.

The amount of the economic advantage for reasons of environmental protection in concise tax for automotive fuels in transportation of the Czech Republic (bil. CZK)

Year	Unleaded petrol	Biodiesel fuel	Liquified gases LPG	Compressed gases CNG	Total
1993	438	low	low	10	448
1994	870	low	low	21	891
1995	1103	209	12	28	1352
1996	0	250	38	30	318
1997	0	1398	62	33	1493
1998	0	1261	557	40	1858
1999	0	1624	658	48	2330
2000	0	315	710	50	1075
2001	0	79	827	41	947
2002	0	395	1051	50	1496
2003	0	648	1118	51	1817
2004	0	424	554	2	980

Source: Calculated by CENIA according to the concise tax rates and estimated transport consumption (Transport Research Centre Brno)

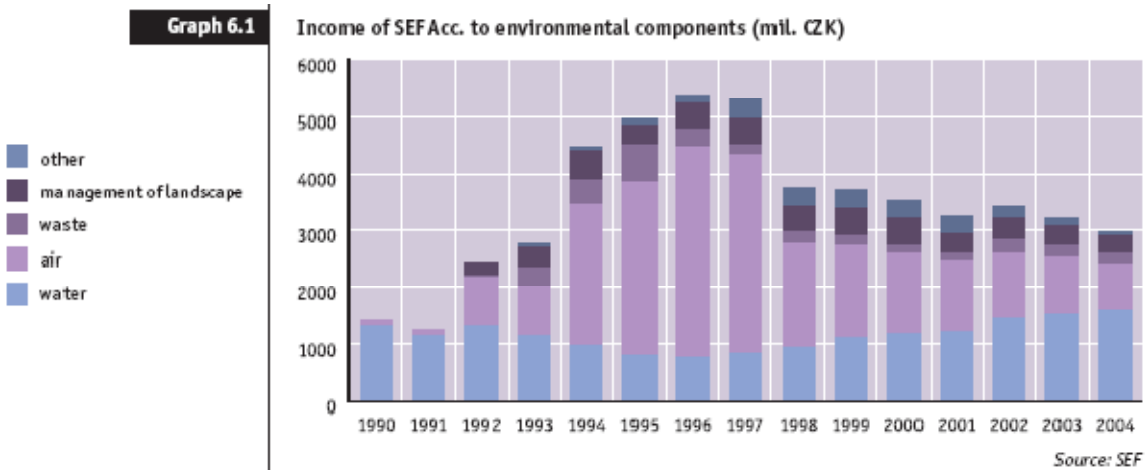
Sale of fuels for transportation in the Czech Republic in 1993–2004 (thous. t)

Year	Petrol total	Diesel	Others
1993	1 425,60	1 682,50	175,30
1994	1 651,60	1 685,60	140,50
1995	1 684,40	1 982,90	207,00
1996	1 850,10	2 285,30	194,50
1997	1 941,00	2 239,60	330,50
1998	1 788,70	2 275,00	356,50
1999	1 975,60	2 232,00	433,30
2000	1 920,60	2 393,10	484,30
2001	1 977,60	2 668,40	481,10
2002	1 979,00	2 659,30	529,30
2003	2 110,80	3 046,00	599,90
2004	2 305,20	3 413,50	591,30

Source: Transport Research Centre Brno

Payments for environmental impacts ("charges")

- various payments for pollution and utilization of the natural resources.
- the payments have been utilized since the mid 1960s, they include charges for **air pollution**, charges **for discharge of waste water** into surface water, charges for **consumption of surface and ground water**, as well as charges for the **use of agriculture land resources**,
- the transformational changes since the beginning of the 1990s (especially privatization and the introduction of the market economy) created the need for the application of economic measures, mainly with regard to impacts of these payments on entities polluting or utilizing the living or natural environment => significant changes to the environmental law (related to the extent and structure of pollution sources, charges for pollutants, rates of charges etc.)
- in the 1990s, new charges were introduced – especially **for waste dumping**, **extraction of mineral resources** and **forestland exclusion**
- the charges are paid according to the rules stipulated by relevant laws (including rates per pollution unit).
- they are paid mainly by industrial companies and companies providing services to citizens
- the payment of the charges is controlled mainly by the Czech Environmental Inspectorate or regional authorities, most of the charges are collected by tax offices and the financial revenue is received by the State Environmental Fund of the Czech Republic or municipalities.
- the majority of the collected charges are used to support activities dedicated to environmental protection



As of 2004, **16 types of charges** (payments) are paid in the CR. They include charges:
- for air pollution – operators of extra large and large stationary sources,
- for air pollution – operators of medium-sized stationary sources,
- for air pollution – operators of small stationary sources,
- for production and import of regulated substances and products containing them (Freons) (they in fact, but not de jure, ceased as of 1 May 2004 after the accession of CR in EU),
- for discharging wastewater into surface water,
- for permitted discharging of wastewater into groundwater,
- for surface water consumption in order to pay for the river basin management,

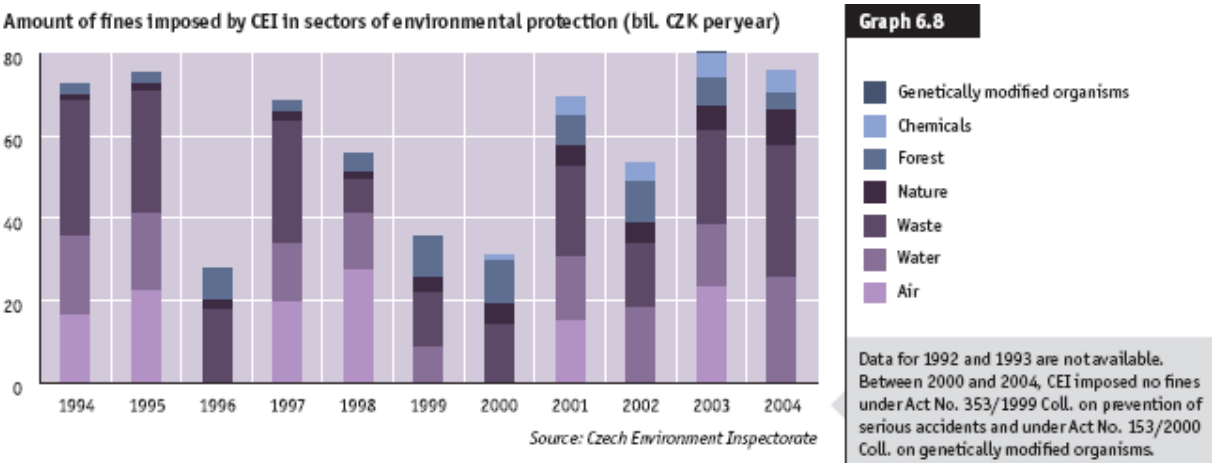
- for groundwater consumption,
- for waste dumping on a landfill
- to support the collection, processing, usage and removal of selected car wrecks, which have been paid since 2004 by the car importer, amounting to 5,000 CZK/car, if the imported used car does not comply with the emission standard for new cars,
- for the operation of a system of collection, transport, separation, usage and removal of municipal waste /for municipal waste – this is a fee for municipal waste disposal,
- for registration and annual recording in a list of authorized entities under the Act on packaging,
- for a mined area,
- for a volume of extracted minerals,
- for the agricultural land use exclusion (permanent and temporary),
- for forestland use exclusion

A special category of payments includes fines – sanctions for not observing limits or duties defined by the State.

The Upper limit of fines for breaching the duties resulting from the environmental protection laws

Environment sector	Upper limit of the fine	Pursuant to Act no.
Waste [3]	50,000,000 CZK	185/2001 Coll. [2]
Chemical compounds [1]	5,000,000 CZK	356/2003 Coll. [2]
Air protection	10,000,000 CZK	86/2002 Coll. [2]
Integrated prevention	7,000,000 CZK	76/2002 Coll. [2]
Water protection [3]	10,000,000 CZK	254/2001 Coll. [2]
Packaging	50,000,000 CZK	477/2001 Coll. [2]
Forest protection	1,000,000 CZK	282/1991 Coll. [2], 289/1995 Coll. [2]
Nature protection	1,000,000 CZK	114/1992 Coll. [2]
CITES	1,500,000 CZK	100/2004 Coll.
Cruelty to animals	500,000 CZK	246/1992 Coll. [2]
Agricultural land protection	500 × min. wage	334/1992 Coll. [2]
Evaluation of products [4]	300 × min. wage	244/1992 Coll.
Nuclear safety	100,000,000 CZK	18/1997 Coll. [2]
Public health protection	3,000,000 CZK	258/2000 Coll. [2]
Prevention of serious accidents caused by chemical compounds [1]	5,000,000 CZK	353/1999 Coll. [2]
Genetically modified organisms	5,000,000 CZK	78/2004 Coll.
Land planning and building code [3]	1,000,000 CZK	50/1976 Coll. [2]
Other	1,000,000 CZK	17/1992 Coll. [2]
Other [5]	100,000 CZK	36/1975 Coll. [2]

Source: CENIA according to the relevant legal provisions



"The range of economic instruments available for environmental protection applied in the Czech Republic is one of the largest in Europe and probably in the world (Slovakia and Poland have a similar, though less numerous range of charges). However, environmental charges have not always been introduced and modified systematically and ideally. Therefore, there are cases when charging is ineffective (e.g. with regard to administration or transaction expenses). For this reason, the existing system of charges, its improvement and gradual coordination with other tools of environmental policy, should be explored."

Voluntary Programs

- The first voluntary regulatory instruments (i.e. instruments reducing the negative impact on the environment) to be implemented in our country were:
    - ecolabelling (1993),
    - Responsible Care (1994)
    - Cleaner Production (1994).
- These were followed by
    - voluntary agreements between industry and state administration (1995),
    - implementation of ISO standards of the 14 000 series (1997)
    - EMAS (EC's Eco-Management and Audit Scheme) (1998)
- in mid-2005,
    - more than 300 products of 75 producers have been labeled as environmentally friendly products (179 ecolabelling licenses granted) in 41 product categories.
    - 29 companies of the chemical industry are entitled to use the Responsible Care trade mark,
    - 118 Cleaner Production projects have been implemented,
    - seven voluntary agreements have been made,
    - 1 332 firms have been certified ISO 14 001
    - 18 companies have implemented EMAS.

National Program for Labeling Environmentally Friendly Products (EFP)

- the preparation of the national program started in September 1992.
- the Czech National Programme for Labelling EFPs was started in April 1994.

- criteria were set for evaluation of thermal insulating materials from scrap paper, lubricating oils for chain saws, detergents for textiles and water-based painting and coating materials.
- in 2005, the National Program encompasses 41 evaluated product categories, ca 300 labeled products and 75 companies – ecolabel holders.
- The Ministry of the Environment is the guarantor of the program, which is administered by CENIA, the Czech Environmental Information Agency (formerly the Czech Environmental Institute).
- the Czech Republic was the first post-communist country to develop a successful national ecolabelling programme.
- In 2000, the Czech Ecolabelling Program became part of the Global Ecolabelling Network (GEN), an organization currently (2005) associating more than 35 most significant world ecolabelling programs.
- In the Czech Republic, the National Program is being implemented in parallel with the EU Ecolabel Scheme and the ecolabel “Environmentally Friendly Product“ is awarded together with the EU ecolabel “The Flower“.

Logo of the Czech ecolabel and the logo of the EU´s “The Flower”

Cleaner Production

- The first (demonstrational) Cleaner Production project in the Czech Republic was carried out in Chemopetrol, Litvínov in 1992–93; initiated by the Czech Environmental Management Centre (CEMC), it was implemented by the World Environmental Centre; It resulted in a reduction in VOC emissions as well as annual savings in the amount of CZK 4 mil.
- In 1999, the Czech Republic joined the International Declaration on Cleaner Production which was proclaimed at the international level in Seoul, South Korea in 1998.
- The national framework was provided by Government Resolution in 2000 which declared the National Cleaner Production Programme (NCPP).
- In 2004 the functions of the NCPP Agency and of the National Cleaner Production Centre were entrusted to the Czech Environmental Institute (today’s CENIA).
- During the 12-year history of Cleaner Production in the Czech Republic, 118 projects were implemented in businesses from the fields of light and heavy industry, transportation, chemical and textile industry, health care, food industry, costume jewellery production, agricultural primary production, bakeries, brewing as well as forestry. 32 % of these projects resulted in financial savings. In the year following the Cleaner Production implementation, 37 businesses saved a total of CZK 177 million.

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About Cleaner Production

What is cleaner production?

Cleaner production (CP) is a voluntary instrument of environmental protection. It consists of a preventative strategy that enhances a more efficient utilization of inputs. It is of great significance because it is an economically beneficial way of reducing negative environmental impacts of producing goods and delivering services.

Cleaner production protects the environment, consumers and employers. In addition, it improves entrepreneurial efficiency, profitability and competitiveness. Consequently, it is not merely an environmental strategy – it also addresses the economic aspects of production.

Cleaner production views waste as costly inputs that failed to be transformed into outputs. It is a universally applicable approach for all industries, regardless of business size and type.

Definition employed by the UNEP: *"Cleaner production (CP) is a persistent application of an integral preventative strategy to processes, products and services with the aim to increase their efficiency and limit the risks for humans as well as for the environment."*

"In production processes, cleaner production consists in a more efficient utilization of raw materials and energy, in elimination of toxic and dangerous materials and in prevention of waste and emission at source."

"In products and services, the strategy of cleaner production focuses on reducing their environmental impacts throughout their life cycle from development to utilization."

Five reasons to implement cleaner production:

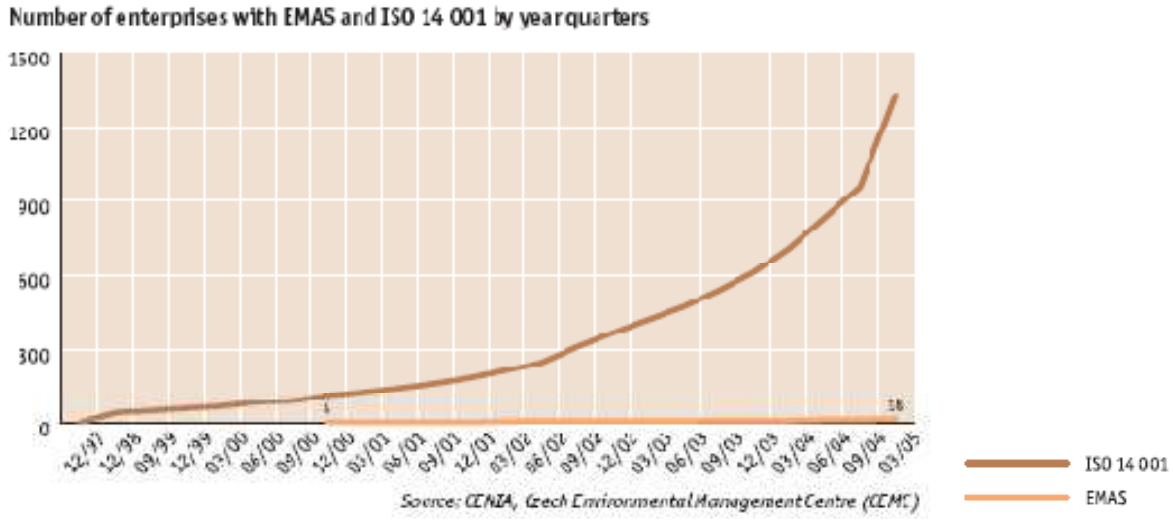
- lower production energy consumption,
- lower production material consumption,
- financial savings,
- increased production efficiency,
- increased competitiveness (products, services).

The application instrument of Cleaner Production is the CLEANER PRODUCTION ASSESSMENT. It is a comprehensive information tool providing not only the information on negative environmental impacts, but also possible elimination strategies, including the financial impact of the corrective measures.

The Cleaner Production Assessment (CPA) is a voluntary instrument for environmental protection. No company is obligated to use the CPA. If a company does use the CPA to obtain the necessary information for improvement, the final decision as whether to implement, the measures would be up to the company's management.

National EMAS Program

- The EMAS system entered into force in April 1995 and it was opened mainly to businesses from the production (industrial) sphere.
- The EMAS Program Council and the EMAS Agency were established as bodies responsible for the EMAS implementation in the Czech Republic.
- updated in 2002, the main purpose was to extend the applicability from the field of industry to all economic sectors (incl. public institutions), to strengthen the compatibility between EMAS and ISO 14 001 by using ISO 14 001 as an essential EMAS basis and to encourage the participation of SME in the program.



- ISO 14 001 surpasses EMAS as regards the number of certified businesses mainly for economic reasons: ISO is the less demanding option, valid worldwide and its implementation is currently seen as a full market factor.
- This trend is apparent all over Europe, despite the pressure from EU authorities to implement EMAS.
- The Czech Republic ranks seventh among the European Union Members concerning the number of ISO 14 001 certificates (2004/2005).
- Among enterprises with EMS (ISO 14 001 + EMAS) manufacturing enterprises prevail, by which accepting environmental system is caused by competitive pressure.

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About EMAS

The environmental management system in accordance with Eco-Management and Audit Scheme (EMAS) represents a company's active approach to the monitoring, management and gradual decrease of its environmental impact. It is based on Regulation 761/2001/EC of the European Parliament and of the Council. In the Czech Republic the guarantor of the EMAS Programme is the Ministry of the Environment.

EMAS increases the credit and the competitiveness (it may also be a technical qualification criterion pursuant to Act No. 137/2006 Coll., on Public Procurement), brings cost savings, credibility and order in operating documentation. EMAS implementation and maintenance improve the communication and awareness of staff and partner companies, enhancing emergency preparedness. Using EMAS, an excellence level, exceeding legislative requirements, may be achieved. Businesses with EMAS implemented are entitled to lowest eco-label fees unlike companies without EMAS.

You can voluntarily participate in the EMAS, if you meet the following criteria:

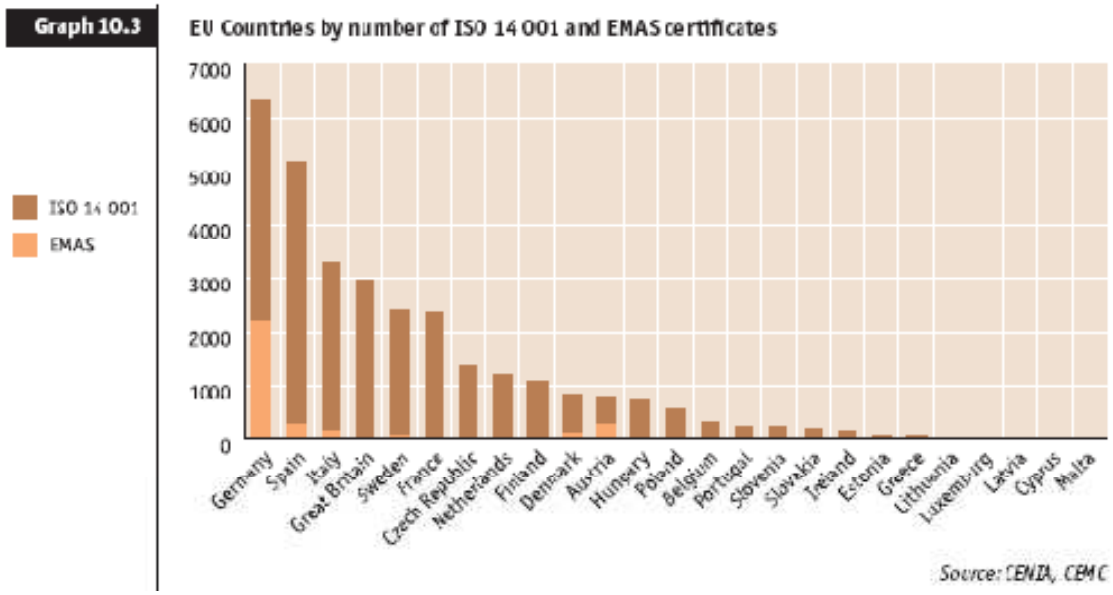
- preliminary environmental audit,
- implementation of a management system (problem– goal – solution – result – evaluation)
- preparation of an environmental statement,
- audit of the system and statement made by an authorised auditor,
- free registration (registration certificate, registration number and the EMAS logo).

An authorised environmental auditor shall approve the updated data provided in the environmental statement once a year. In 3-year periods the auditor shall audit repeatedly all the environmental management elements that are required for EMAS registration.

The environmental statement is intended mainly for those interested in the environmental performance of a business, such as customers, employees, financial institutions, media, local communities, authorities, environmental organisations, students, researchers, consultants or even competitors.

EMAS Documents:

- Regulation 761/2001/EC of the European Parliament and of the Council (PDF, 119 kB)
- Commission Recommendation for the implementation of Regulation (EC) No 761/2001 (PDF, 167 kB)
- Commission regulation (EC) No 761/2001 (PDF, 155 kB)
- Commission regulation (EC) No 196/2006 (PDF, 67 kB)
- EMAS Guide (PDF, 665 kB)



Other Voluntary Activities

- **Responsible Care**
  - at present 29 companies are entitled to use the label Responsible Care.
- **Voluntary Agreements**
  - contracts between a public law entity on one side and one or more subjects on the other side
  - The content of voluntary environmental agreements varies significantly.
  - By the end of mid-2005, there were 7 voluntary agreements concluded in the Czech Republic.
  - e.g. Agreement on Gradual Reduction in Environmental Impact of Detergents, Agreement on Packaging, Agreement on Cooperation with the Czech Business Council for Sustainable Development and Confederation of Industry of the Czech Republic, Agreement on Portable Batteries Collection, Voluntary Agreement on Reduction in Mercury Load from Dental Medical Institutions…
- **Environmental Managerial Accounting**
  - environmental managerial accounting system collects, records, evaluates and transfers to the user the information on material and energy flows, flows of all types of waste and waste management, as well as information on costs, savings and revenues relating to all activities with potential impact on the environment.
  - environmental reporting at company level

The concept of sustainable development and Local Agenda 21

"Sustainable development means development which satisfies current needs without compromising the possibilities for future generations to fulfill their own needs."
(UN World Commission on Environment and Development led by G. H. Brundtland, the report "Our Common Future," 1987).

- The concept of sustainable development in the meaning of the first 1987 definition has been implemented in the Czech Republic since the very beginning of the evaluated period.

- The 1990 environmental policy – Rainbow Program – lists "the concept of sustainable development against economic growth leading to high consumption of natural resources" as the primary principle used by the Ministry of the Environment within its activities.
- With different intensities and wordings, the principle of sustainable development has been endorsed by all environmental policies so far.
- In the 1990s this concept was implemented mainly through activities associated with the Agenda 21 adopted at the 1992 conference in Rio de Janeiro.
- The Sustainable Development Strategy of the CR was approved in December 2004.
- The Strategy was presented to the Czech Parliament and became the basis for the preparation of conceptual documents, for strategic decision-making within the state administration and for its cooperation with interest groups.
- The Strategy is also intended as a long-term framework for political decision-making in the context of international obligations assumed or to be assumed by the Czech Republic on the basis of its membership in the UN, OECD and EU, but respecting the specific conditions and needs of the country. The promotion of the Local Agenda 21 is a part of the Sustainable Development Strategy.
- **Local Agenda 21**
    - The Agenda 21 from Rio had a positive worldwide acceptance and the term Agenda 21 became a synonym for sustainable development.
    - in CR, this activity began to develop in 1997, mainly with foreign financial assistance to projects of NGOs. At the same time, the Ministry of the Environment (MoE) started to support LA21, mainly through the Czech Environmental Institute (CEI), today's CENIA.
    - LA21 is one of the objectives of the current State Environmental Policy (SEP) for 2004–2010 and is also supported by the State Program of Environmental Education.
    - http://www.cenia.cz/__C12572570032F2DB.nsf/$pid/MZPMSFIV6OXM

      Local Agenda 21 *is a tool for the implementation of the principles of sustainable development at the local and regional levels. It is implemented at a specific time and place, in a municipality or a region. It is a process which through improving the administration of public matters, allowing for strategic planning (management), involving the public and using the achieved level of knowledge of sustainable development in individual areas, enhances the quality of life in all respects and heads towards citizens' taking responsibility for their lives as well as for the lives of other organisms in time and space.*

      21 *refers to what needs to be done in the 21st century, encourages people to think over a longer time-span.*

Right of Access to environmental information

- demand for environmental information during the 1990s was so significant that a law on right to access to environmental information was passed (1998) before adoption of a general law on free access to information (1999)
- Act No. 123/1998 Coll. ensures access to information on the comprehensive state of the environment, environmental pressures and impacts, exploitation of natural resources, impacts of construction, human activities and industrial technologies, and to information on the environment protection measures
- Unified information System on Environmental Issues

- there was an attempt to centralize the outputs of the individual data sources in one supercomputer in the Centre of Environmental Information, but the technical solution was underestimated.
- after the failure of the centralized solution the Ministry of the Environment concentrated its attention to setting up the individual information subsystems which were fundamentally decentralized, which were created, unfortunately without mutual connections; uncontrolled development of data sources caused problems in later harmonization of the systems; on the other hand, it enabled to comply quickly with legal requirements and to enlarge the scope of collected data.
- In 2000 the first information strategy of the Ministry of the Environment was approved
- This strategy evaluated the steps which had been taken to date and identified what was necessary to build the information infrastructure (it addressed communication, technology and safety together with personnel, financial and regulatory prerequisites)
- 2002–2003 - an updated information strategy plus a central environmental portal was built
- the accomplishment of existing information strategies showed that many data acquisition and publishing problems are still to be solved

ENVIRONMENTAL INFORMATION SYSTEMS

Information System of Nature Conservation www.nature.cz

- Locations, botany, zoology, small-area nature reserves, specially protected trees (memorable trees), geology, remote sensing, aerial photo archive, etc.

Central Nature Protection Register www.nature.cz

- List of national natural monuments, national natural reserves, natural monuments, natural reserves and natural parks.

Hydroecological Information System http://heis.vuv.cz

- Models of the water volumes and quality, watercourses, surface water facilities, water utilities, sampling and water discharge sites, time series, map layers.
- Groundwater and surface water hydrology, water quality, volume, hydrologic forecast, hydro fund, etc.

Air Quality Information System www.chmi.cz

- Register of emissions from large pollution sources, emission balance, consumption of principal fuels, emission density, etc.
- The current state of atmosphere, ground ozone, air quality monitoring, air pollution models, atmospheric deposition (S, N, H, Pb, Cd, Ni), precipitation, airborne monitoring, etc.

Meteorological and Climatic Information System www.chmi.cz

- Weather forecast, wind forecast, European forecast map, early warnings, biometeorological forecast, UV index, lightning and tornadoes detection system, etc.

Waste Management Information System http://ceho.vuv.cz

- Register of waste and packaging management, waste dumps and facilities for waste treatment, use and disposal, information on waste production and disposal, etc.

Environmental Burdens http://map.env.cz

- Site remediation, old waste landfills, elimination of environmental burdens caused by the former Soviet Army.

Decisions and Penalties of the Czech Environmental Inspectorate www.cizp.cz

- Charges for pollution sources and discharge of waste water into surface water.

GeoInformation System www.geology.cz

- Geo-database “GeoČR” 25, 50, 500 – GIS of digital geological maps. A digital atlas of the Czech Republic GEOČR 500, a geological database GEOČR 1:25000, other geo-databases such as important geological locations, a litho-geochemical database, petrographic and mineralogical analyses, a geo-database of radon risk maps 1:50 000, geochemistry of surface water, geochronology of rocks, GEOMON – monitoring of small catchment areas, database of petrographic and mineralogical analyses, etc.

Mineral Resources Information System www.geofond.cz

- Maps of protected raw material deposit, other deposits, survey areas

Geofund www.geofond.cz

- Bore-hole register, landslides, deposits, undermined areas.

Information System of Environmental Impact Assessment www.cenia.cz

- Subjects under EIA, activities, authorised persons, etc.

IPPC Information System www.ippc.cz
Decisions of the Minister of the Environment, proposed by the State Environmental Fund www.sfzp.cz
Natura 2000 www.nature.cz
Alternative Energy Sources www.vukoz.cz
Non-productive Plant Gene Pool www.vukoz.cz
Register of approved GMO and Register of GMO Users www.env.cz
Information System of Public Library and Information Services www.env.cz
Integrated Pollution Register www.irz.cz

INTEGRATED POLLUTION AND PREVENTION CONTROL

- Directive 96/61/EC on **integrated pollution prevention and control (IPPC)** is one of the most important but also most difficult EC regulations on the environment to interpret
- Some interpretations put emphasis on an integrated (comprehensive) approach to pollution control, other interpretations prefer the implementation of the best available techniques (BAT).
- A very important part of the integrated control is flexibility, in other words the possibility to define individual requirements of facilities with respect to the local environment.
- The directive provides for individual emission limit values, e.g. air or water pollution.
- IPPC is also important in waste prevention, or the economical use of raw materials and energies as binding operating conditions given in the integrated permitting can also specify requirements of this kind.
- in CR about 1500 installations fall within the IPPC process
- Category 6 (other installations) is represented the most, category 3 (mineral processing) the least.
- As of June 30, 2005 the most integrated permits are issued for category 6 (other installations), especially for slaughterhouses, milk treatment and processing, poultry and pig breeding, and surfacing. On the contrary industrial companies for cellulose production, pre-treatment and dyeing of fabrics or textiles and for leather and pelt tanning have not joined the IPPC process.
- The Act No. 76/2002 Coll., Annex 1, states 6 categories of installations, which can operate only with an integrated permit from the end of 2007 onwards.
- Reports for the 2007 reporting year were fi led by 775 organizations in total on behalf of
- 1232 facilities. In comparison with the reporting year 2006 the number of reporting facilities increased by 135. 1139 (93 %) of the total number of 1232 reports referred to amounts above the threshold values. 109 facilities reported the quantity of waste transferred off –site only, without referring to any substance releases or transfers.

INTEGRATED POLLUTION REGISTER

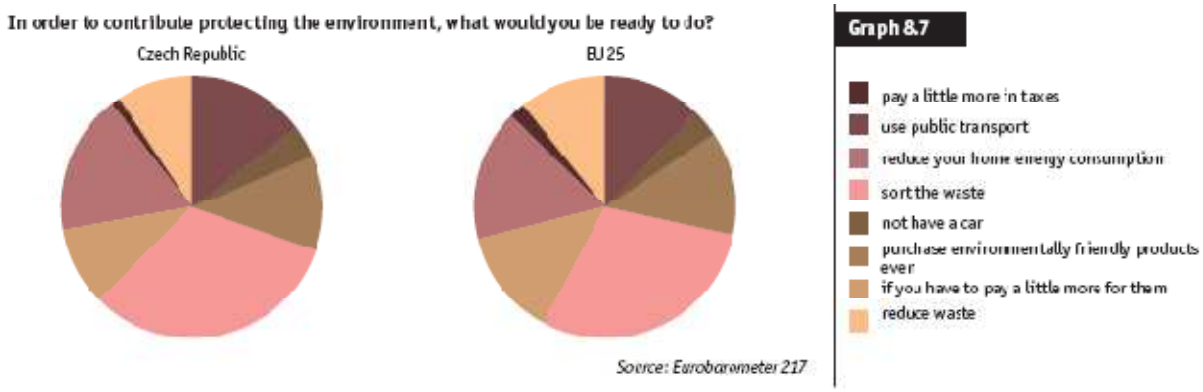
- The **Czech Integrated Pollution Register (CIPR)** is a database of selected pollutants, their emissions and transfers in compliance with the requirements of the European Pollutant Emission Register (EPER).
- Since the data in the database has a geographic location (company, plant), the CIPR can be used to determine the quality of the environment in a given place. The CIPR is used to monitor the success of environmental policies.
- By facilitating access to the pollution sources' emission data CIPR promotes public participation and control, contributing to more responsible environmental behavior of the companies. Industrial and agricultural enterprises may use the data from the register as an environmental management tool (reduction of inputs, implementation of new technologies).

- The register contains information on the release of the registered pollutants into air, water and soil (emission) and the pollutants contained in waste and waste water of production facilities (also known as transfer).
- The obligation to report in terms of the CIPR is effective only if the amount of a released pollutant over a calendar year is equal to or exceeds the threshold level, as specified in Governmental Decree No. 368/2003 Coll.
- The **Central Registration Office (CRO)** unifies and facilitates reporting on the use of a registered substance and its emission in water, air and soil. The objective is to unify all environmental reporting through the CRO so that the environmental portal is used as a single output and the CRO as a single input of the sector.

Environmental Education and the role of NGOs

- Environmental education leading to responsible behavior not only with respect to society, but also towards nature, has been involved in the Rainbow Programme from 1990.
- Non-governmental non-profit organizations dealing with environmental protection were started from “scratch” after 1989. Only some conservationist organizations, e.g. Czech Union for Nature Conservation or the famous Brontosaurus movement, survived the previous regime. At the moment there are more than 420 non-governmental environmental organizations in the Czech Republic.
- One of the important motivational factors for activities of non-profit organizations is the yearly announced prize of the minister of the environment, the Prize of Josef Vavroušek. Also the prize of the Sasakawa peace foundation for the best projects of non-governmental organizations is very prestigious.

Public opinions



Axelrod, R. (2004), Nuclear Power and EU Enlargement: The Case of Temelín. Environmental Politics, 13, 153-172.

Issue of the nuclear power and its future in Europe

"The controversy over the Temelín nuclear power plant (TNPP) in the Czech Republic was transformed from a domestic issue to an international one by the year 2001. Besides providing an opportunity to examine domestic politics and administrative practices in the Czech Republic, the Temelín case raised questions about the future of nuclear power in Central and Eastern European (CEE) countries – and the rest of Europe. What began as a bureaucratic decision in the 1980s by the communist government of Czechoslovakia to build a nuclear power plant became by the late 1990s a major controversy affecting the enlargement of the EU and a nightmare for the foreign relations of the Czech Republic. "

"The dynamics of energy and environmental policymaking in the case of Temelín provides a unique lens for examining the relationship between candidate states and the EU, as well as issues pertaining to the future of nuclear power in Europe."

Historical background

- 1986 Chernobyl disaster => issue of the safety of nuclear power facilities
- 1992, the G-7 countries (Canada, France, Germany, Italy, Japan, the UK and the US) agreed that Russian-designed nuclear power plants should be closed owing to safety concerns, and that financial assistance would be given to replace nuclear power with renewable and alternative energy sources.
- CEE governments and their nuclear industries wanted to keep plants open to prevent them from losing their investments. => plants upgrades => extended lifetime, rise of the nuclear industry in CEE(equipment, instrumentation and control systems (I&C), nuclear waste storage facilities)
- Western Europe (particularly France and Belgium) had excess electricity to sell and the nuclear industry was anxious to find new markets, particularly in CEE countries and Asia, the policy to upgrade Russian-designed plants established a vast new market benefiting suppliers of nuclear technology, particularly US and European nuclear engineering companies => the ability of Western European and North American governments to achieve closure of Soviet/Russian-designed nuclear power plants across CEE and former Soviet regions proved quite limited

The Origins of Temelín

Communist era in Czechoslovakia

⇨ high energy intensity, low energy prices, and inefficient energy production and electricity transmission
⇨ Czech heavy industry and chemical production required a reliable supply of electricity
⇨ nuclear power seemed to be a viable alternative

1978 - the decision for construction was approved (Temelín is located in the southern part of the Czech Republic, cca 80 km from the Austrian border)
1986 - construction began
- after the Chernobyl accident => a review of Temelín's design a halt in construction

1992 - new government to decide about construction => completion of the TNPP.2 (no adequate information on electric supply and demand, absence of public debate
- studies by the International Atomic Energy Agency (IAEA) found flaws in the design of Temelín, and recommended replacement of the I&C systems. There were also questions regarding the use of Russian fuel as well as the fuel cycle itself, contributing to higher levels of radioactive waste than Western designs.

1993 - after a controversial and questionable bidding process, Westinghouse was awarded a contract to graft Western technology on to the Russian-designed reactors.

The Austrian position - Temelín is influenced by its proximity to the plant and the fact that it is a non-nuclear state.

early 1990s
when the contract with Westinghouse to upgrade Temelín was being considered => lobbying against the TNPP in the US Congress (similarly, Austria later opposed the completion of the Slovakian Mohovice nuclear power plant in 1998).

By 2000
the Austrian position was complicated because of the nature of its coalition government, difficult to reach a political agreement => widening the scope of conflict to other European states and international NGOs => a campaign against nuclear power in Eastern and Western Europe

September 2000
the Austrian Parliament approved a resolution to block Czech entry into the EU because of Temelín. The problem here was that there exists no EU competency for nuclear power plant regulation, probably because a number of the nuclear states, including France and the United Kingdom (UK), are wary of opening a Pandora's box of regulatory debates. In fact, **EU member states (and publics) remain quite divided on nuclear power issues.** Seven of the 15 member states have nuclear power plants, and eight of the 12 candidate states are nuclear. On the other hand, countries such as Austria have totally banned nuclear power while Sweden and Germany are officially engaged in phasing out their nuclear power facilities => lack of agreement

October 2000
nuclear fuel was activated in the first Temelín reactor and Austria moved to widen the controversy to Brussels. In the autumn of 2000, anti-Temelín forces set up blockades on the borders between the Czech Republic and Austria to increase public attention on the issue. Austria soon changed its strategy from demanding the closure of Temelín, to blocking the closing of the Czech energy chapter in the accession negotiations. This move could have jeopardized the entire accession process, since a veto of any of the 31 chapters by even a single EU member state would prevent accession to the EU. When Czech officials decided to go ahead with the completion of Temelín, they never thought the issue would rise to the level of potentially blocking Czech accession to the EU. The veto of one state could do so, which is what Austrian officials were threatening.

⇨ the EU became an important player mediating between two states with unequal status – a member state and a candidate state

- ⇨ At the request of the Czech foreign minister, Jan Kavan, the Commission offered to act as mediator at the end of 2000. Both Austria and the Czech Republic agreed to the mediation. The result was **the Melk Agreement**, the result of many hours of tedious negotiation.
    - o The Czech Republic agreed to an Environmental Impact Assessment with EU participation (The Commission later concluded that the environmental impacts were considered to be insignificant and acceptable)
    - o Austria said it would cease threatening to block the closing of the energy and environmental chapters and to protect the borders from further blockades.
    - o As an early warning system for extraordinary events, a hotline was established from Temelín to the Austrian Federal Atom Centre at the Interior Ministry to supply updated studies on breakdowns and uncontrolled release of radioactivity.
- ⇨ Between February 2001 and July 2001, in a parallel process, there were ongoing discussions (not smooth) between the EU, Czech nuclear experts and Austria.
- ⇨ Surprisingly, EU Enlargement Commissioner Gunter Verheugen suggested at some point that Temelín would 'probably be the safest nuclear plant in Europe' (*Prague Post*, 29 November 2000).
- ⇨ **German approach:** In July 2001, the German government formally asked the Czech government to revise its decision to operationalize Temelín. E.ON, a German power company, said it would cancel contracts with CEZ to import electricity. Meanwhile, Bavarian border towns launched a campaign to stop Temelín with petitions. A difficulty with the boycott strategy was the inability to distinguish between sources of electricity. Other German companies kept the CEZ (Czech energy producer) contracts and purchased electricity indirectly through ENRON. Germany never threatened to block Czech accession over Temelín, although it is committed to close its own nuclear plants within 20 years.

- ⇨ Difficult role of the EU: Since there are no EU standards, which national standards should apply? German, French and British standards are not the same. Czechs officials argued that the EU could not apply pressure to candidate states about nuclear power because it lacked the competency to do so with existing members. However, the EU position was that it could force an EIA on non-members even though it was not called for in EU legislation.

- ⇨ The conclusions of the Melk Process issued on 29 November 2001, defined a follow-up process. The agreement between the Czech Republic, Austria and the EU was 130 pages long. Each state recognized the sovereign right to its own energy policy, but there would be joint monitoring and cooperation to increase energy efficiency.

- ⇨ but the struggles continued …

- ⇨ Why did Austria finally abandon a veto of Czech accession? First, Austria lacked support in the EU Council. Second, Chancellor Schussel risked jeopardizing the strength of his coalition in a long, difficult and unpleasant fight. There was, in fact, no legal basis for stopping Temelín.

- ⇨ At the December 2002 Copenhagen Summit, at which the CEE states were invited to join the EU, Austrian officials wanted to embed a protocol to the accession treaty with the Czech Republic making the Melk Protocol subject to international law and subject to enforcement by the European Court of Justice. Lacking an EU nuclear energy policy and given the influence of the nuclear states, the attempt failed. Nuclear member states may have feared that such a move might put other nuclear power plants under European Court jurisdiction

with possible lawsuits initiated by antinuclear groups. The Melk Agreement remains a bilateral agreement and not subject to international law.

⇨ **Role of Czech NGOs:** Generally, Czech NGOs were never really successful in challenging the government position favoring Temelín, it was the intervention of foreign NGOs and green political parties which forced the public hearings and EIA within the context of the EU accession process.
⇨ and Temelín's technical problems continued

Conclusion

- The Temelín case illustrates the limits of existing environmental policy not only in the Czech Republic, but among the member states of the EU where the long-term impact of nuclear energy has not been considered fully.
- Similarly, the World Bank has also met with mixed results in its attempts to close Soviet-designed nuclear power plants in Slovakia and Ukraine.
- EU approval of Temelín, while keeping the issue separate from Czech accession, overlooked difficult issues concerning nuclear safety and the desirability of an enhanced nuclear future.
- EU funds for nuclear power compete with commitments to support renewable energy.
- need for an EU-wide debate about the appropriate energy mix necessary for meeting sustainable environmental goals.
    - Bulgaria is considering building a new nuclear plant to compensate for the loss of its Kozloduy plant
    - Finland is considering new nuclear power,
    - Sweden is rethinking closing its plants
    - Germany may be dragging its feet in closing its nuclear power plants.
- Yet, some attempts to set EU-wide minimum safety standards based on those from the International Atomic Energy Association are moving forward, partially as a result of the enlargement process.
- The intense bilateral negotiations over Temelín between the Czech Republic and Austria coincided with, or could be considered to be, the result of the Czech accession process. The Czech position was that if the plant was deemed unsafe by EU standards it could be closed. The Czechs argue that their plant has been scrutinised more than any Western European one. The problem was that there was no guidance from the EU because it could not agree on a nuclear policy. Standards for high nuclear safety are also lacking. The Austrians threatened to veto both the environment and energy chapters unless a new and comprehensive assessment was made of Temelín. The goal was to close Temelín or delay Czech accession. This was interpreted as extreme pressure or blackmail by most Czechs. Austrian opposition to Temelín was also perceived as outside interference threatening sovereignty
- The Austrians hoped this would be an opportunity for the EU to take a position on the future of nuclear power. Austria's aim was to raise questions, such as, is nuclear power consistent with sustainable development? What of long-term waste disposal and decommissioning? Austria also raised the issue of cross-border environmental impact and sovereignty to public attention. Is a state free to decide how it will produce electricity? Is the answer yes for current member states and no for candidate states?
- On the other hand, EU bodies (when unanimity has existed and when funds for closure were promised and provided) have forced candidate states such as Bulgaria and Lithuania

to accelerate the closure of a small number of nuclear power plants deemed quite dangerous. The EU made termination of an unsafe nuclear power plant in Bulgaria a condition to begin EU accession negotiations. Without the spectre of EU membership it would have been much more difficult to close unsafe plants. Even so, Bulgarian officials and nuclear power interests continue to discuss the scheduling closing of a number of reactors in Bulgaria. These debates continue, at least in part, because Bulgaria has electricity export opportunities. The EU could use the accession process to increase transparency in candidate states and support NGO pressure on their governments for information on environmental impacts of energy.

Vail - Illegal Waste Transport and the Czech Republic: An Environmental Sociological Perspective

- In late 2005 Czech authorities first began to discover substantial amounts of municipal waste illegally transported from Germany to the Czech Republic.
- the dumping of more than 30 000 tons of German waste in 'black dumps' throughout the Bohemian countryside raised social, economic, and political questions about how to mitigate the negative human health and environmental impacts and prevent dumping in the future. In addition to prompting practical policy questions
- the author presents the history of the Bohemian illegal waste problem and then describes and analyses relevant waste management policies in the Czech Republic, Germany, and the European Union in the light of the ToP theory,(treadmill production theory) which hypothesizes that environmental degradation is caused primarily by institutional political-economic forces, and that the protection of environmental quality can be achieved only through structural reform.
- "Developing nations are attractive to international capital for several obvious reasons. Cheap labor, weak environmental laws, and corrupt business and government can lower the cost of production. In essence, multinational corporations achieve bigger profits by externalizing more of the costs of production."
- the Czech Republic has benefited from globalization: with a relatively low-priced and well-educated work force, the nation has attracted foreign investment; new industries have provided well-paid skilled jobs and often use techniques that are less polluting than those of communist-era firms.
- But CR is also experiencing some downsides of globalization, and illegal waste shipment is one example.
- In line with the ToP theory, as new strict regulations come into force and waste treatment costs rise in Germany, it is natural for Germans to seek cheaper disposal alternatives. There was strong evidence already in the early 1990s that the shipment of waste to Central and Eastern Europe could have negative social and ecological effects.
- The problem of illegal or 'black' dumps in Bohemia has highlighted the strengths and weaknesses of the current waste policies intended to regulate this trade.

Illegal waste transport and the Czech Republic

- In the autumn of 2005 and the winter of 2006, Czech authorities discovered that significant amounts of municipal waste were being illegally transported into Bohemia from Germany.
- Illegal transports continued to be intercepted by police and customs officials throughout 2007.

- The waste was detected primarily through the interception and inspection of trucks headed to black dump sites.
- By the spring of 2006, the Czech Environmental Inspectorate (CEI) determined that much of the waste came from Germany
- Black dumps were found in a variety of locations within the Czech Republic, mostly in North Bohemia near the German border. A total of **26 illegal dumps** were documented in the media as containing waste that appeared to have originated in Germany.
- The sites where waste was dumped illegally included open fields and lots, farm buildings, a vacated military airfield, warehouses, and even legal landfills. In sum, the CEI identified about **30 000 tons** of alleged illegal German waste dumped in Bohemia. Of this amount, about 15 000 tons was ultimately land-filled within the Czech Republic by the summer of 2006, and only about 7000 tonnes was satisfactorily proven to be of German origin.
- In January 2006, Czech authorities discovered what was to become perhaps the most notorious dump, near the village of Libčeves in North Bohemia. There inspectors found around 4000 tonnes of municipal waste from Germany – the equivalent of about 200 tractor-trailer truckloads – stored out in the open and in a barn. Some of the waste was hazardous, and the improper storage attracted pests and threatened to contaminate the soil and water.
- When it was finally agreed that the government of Saxony-Anhalt should repossess the waste, only about 750 tons were taken back to Germany, and the remainder was land-filled in the Czech Republic [ČTK 2006e]. A Czech waste hauler was fined ten million Czech crowns for creating the dump, but avoided payment by declaring bankruptcy
- Czech authorities response
    - regulatory reforms
    - cooperation and confrontation with their German counterparts.
    - the government considered banning all waste imports
    - a rule broadening the list of wastes requiring permits to enter the country took effect in March 2006 but was almost immediately abandoned as impracticable; plus deemed at variance with EU waste shipment regulations and interfered with the legitimate cross-border waste trade critical to the Czech recycling industry.
    - more border checks with higher potential fines for violators (maximum fine for improper waste import was raised from CZK 10 million to 50 million)
    - fines were imposed on several companies, numerous suspects were arrested (by late April 2006, 5 Czechs and 1 German had been arrested)
    - 4 Czech companies were fined between CZK 0.25 million and 10 million for their participation in the smuggling.
    - By June 2006, the CEI announced plans to seek prosecution of up to 20 German companies
    - a special German-Czech environmental commission was created and a ‘Roadmap for the take back/disposal or recovery of illegally shipped German waste to the Czech Republic’ was signed by the environment ministries of both nations in early May 2006. (but Czechs still felt that the German authorities were not particularly forthcoming with assistance in solving the crime and determining responsibility for the clean-up.
    - At the international level, the Czech Republic advocated stricter regulation of the waste trade, both in Brussels and in solidarity with its neighbors in the Visegrád group (the Czech Republic, Hungary, Poland, and Slovakia)
- over a period of many years Germany has pressured the EU to adopt stricter waste policies. For example, the Packaging Waste Directive (94/62/EC) is based heavily on German policies for the collection and recycling of packaging.

- At the same time, recent Czech environmental policy reform has been motivated almost entirely by the need to conform to requirements involved with becoming an EU member state in May 2004 => Thus, Czech restrictions on the import and disposal of foreign waste have been driven at least indirectly by German initiatives.
- **main principles of EU regulation of waste management**
    - the **polluter pays principle** (PPP) saying that those who produce pollution are legally and financially responsible for the clean-up of the pollution (the aim is to internalize environmental costs
    - the **proximity principle** states that environmental problems should be dealt with as close to the source of the problem as possible (goal of regional and national self-sufficiency in waste generation, treatment, and disposal).
    - The **waste hierarchy** establishes an order of priority for the treatment of waste, which includes, in order of most preferred to least preferred options: waste prevention and reduction, reuse, recycling, recovery, and disposal
- The overarching policy context for handling the Czech-German waste transport dispute was set by Waste Shipment Regulation (WSR) which classifies wastes by risk, requires prior authorization for the shipment of waste, and stipulates that unauthorized waste must be returned to its source of origin or otherwise properly disposed of => If waste is determined to have been transported illegally, the 'notifier' – the source of the waste – must take responsibility for its return and proper disposal.
- **Germany**
- has an international reputation for strict and innovative waste management practices (e.g., the 'Green Dot' recycling program started was a pathbreaking policy designed to increase recycling rates and reduce waste production, which has become a model for recycling programs throughout Europe, including CR)
- In 2001, a new waste storage ordinance came in force in Germany
    - municipal waste may no longer be land-filled directly
    - rules requiring waste to be incinerated or subjected to mechanical-biological treatment before final disposal came into effect on 1 June 2005.
    - poorly lined landfills are to be gradually closed down by 2009.
- Hempen [2005] - there was 'little data available' to predict the country's waste storage capacity after 1 June 2005, but some evidence suggests a national 'capacity shortfall of at least 2 million tons
- When the rules were applied, 200 of 333 official landfill sites were closed, driving up waste treatment costs
- The German newspaper Freie Presse reported that 'the price for legal storage of 1 ton of domestic waste is about 32 Euro in the Czech Republic, while an incinerator in Saxony, for instance, requires 170 Euro per ton.
- The storage of 1 ton of domestic electronic waste costs 180 Euros in the Czech Republic and 350 Euros in Germany. The prices at illegal dumps are even lower
- The Germans already knew that it was diffi cult to enforce laws restricting crossboundary waste movement. In 1997, there were 40 000 cases of reported environmental crimes in Germany, of which nearly 29 600 were cases of unsafe waste management, including 58 cases of illegal transfrontier waste shipment. The police's success rate at solving environmental crimes in that year was 60%
- weak enforcement/punishment ("in most cases of imprisonment up to two years probation is granted. Usually a criminal ban on a professional activity is imposed in serious cases only, i.e. if there is a danger of recidivism")
- "An examination of the many known cases of illegal German waste export over the last twenty years reveals patterns. Intense pressure within Germany caused by increasing waste

generation and decreasing capacity create economic incentives to find quick and easy solutions. As a result, when Germans have sought to export waste, companies or individuals in the receiving nations have conspired to dispose of the waste cheaply, often in questionable ways. The recent appearance of black dumps in Bohemia follows this pattern."

Conclusions

- ***Illegal export was a predictable consequence of the 2005 German landfill rules***
    - The OECD explains that when materials are banned or redirected from landfills, which was the aim of the German legislation, 'the hope, of course, is that these products will, as a result, be recycled. But the incentive offered by the tax or ban is not an incentive to recycle, but rather an incentive to not landfill => Illegal dumping, exporting, and incineration are also stimulated'
    - From a ToP point of view, this raises questions about the sincerity of the German government's desire to enforce waste export law – in what may amount to a tacit collaboration between national authorities, municipalities, and/or businesses to reduce operational costs. Such an interpretation is consistent with the ToP hypothesis that governments and business often collaborate as to promote economic activity at the expense of environmental quality (further research needed)
- ***The export of waste shifts environmental risk from Germany to other nations and undermines sustainability principles***
    - Restrictions on export provide incentives for waste reduction or recycling. Unrestricted export means that producers may push waste processing risks on others, undermining EU and German principles of sustainable development. In this case, Germans have benefited at home from strict landfilling laws and Czechs have been made to bear the costs of disposal => German waste export to Bohemia shifts the risk abroad and externalizes the costs of production and consumption.
- ***Policy loopholes – intentional or not – make illegal transport easy and lucrative***
    - it is simplistic to depict Germany as the villain and Bohemia as a purely innocent victim. Indeed, the Czech Environment Minister at the time initially blamed the situation on Czechs who helped Germans bring the waste into the country. 'German businessmen often do not know that they are sending waste to the Czech Republic at variance with law'
- Study of black dumping in Bohemia suggests that the waste transport policies and practices within individual nations and throughout the EU have contributed to the phenomenon of illegal waste shipment, and until loopholes allowing free trade in waste labeled for recycling, coupled with weak enforcement, are remedied, there will continue to be a high probability of successful illegal transport.