Lecture 11 (May 14)

Environmental Policy in the Central European Context

Time: Thursdays 3 p.m. – 6 p.m.
Location: at CERGE-EI, Room # 10

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See also: home.cerge-ei.cz/ortmann and home.cerge-ei.cz/richmanova

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WEEK: TOPICS: DATE: INSTRUCTOR
1 Introduction (history/outline) Feb 19 JK/AO
2 Market failures: externalities, tragedy of the commons, enforcement as public good, also, (rise and fall) of the environmental Kuznets Curve February 26 AO
3 Interventionist solutions to the Externality problem – Pigouvian taxes and standards and charges, also environmental labeling and incomplete consumer information in laboratory markets March 5 JK
4 Interventionist solutions to the Externality problem – Marketable pollution permits March 12 AO
5 Non-Interventionist solutions to the Externality problem – The Coasian solution March 19 JK
6 Non-interventionist solutions to the Externality problem – Self-regulation March 26 AO
Mid-term exam April 2
7 Environmental Policy in the Czech Republic – History and current issues April 9 JK/AO
8 Environmental Policy in the EU – History and current problems April 23 (April 16 falls into Semester break and on Easter Holiday) AO
9 Environmental Policy in the world context – History and Current problems April 30 JK/AO
10 Contingent valuation and related issues May 7 AO
11 Today; See agenda on next page
Final exam: to be determined (according to schedule May 18 – 21), get-together after the final exam?

Things we do today:

- **Update on the political landscape/theater (AO)**
- **State of the environment in CR after the Velvet Revolution (JK)**
- **TERM 2008: indicators tracking transport and environment in the EU (JK AO you)**
- **Kotchen, Moore, Conservation: From Voluntary Restraint to a Voluntary Price Premium (AO)**
- **Letting the semester pass revue**

Update on the political landscape/theater

News Friday, May 8th, 2009 By: Jan Velinger
New caretaker government takes office

President Vaclav Klaus has named the country's new interim government to office. 16 new ministers were sworn in at Prague Castle shortly after four pm on Friday. The move was a final step in ending a crisis which ensued when the previous cabinet was defeated by the opposition in a vote of no-confidence (which took place in March). One of the main goals of the new caretaker cabinet, led by Prime Minister Jan Fischer, will be to see through the remaining two months of the Czech EU presidency, as well as to lead the country to early elections. At the ceremony on Friday, Czech President Vaclav Klaus expressed confidence the government would be successful in facing its tasks ahead.

Analysts: government faces difficult task in improving image of Czech EU presidency

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In related news, one of the tasks faced by the caretaker cabinet will be to improve the image of the Czech EU presidency, which many observers say suffered after the fall of the previous government. Czech news agency CTK reported on the matter on Friday. A number of recent informal summits hosted by the Czech EU presidency, such as a meeting on regional development, had since seen a low turn-out by European officials. Many, including the Czech ambassador to the EU, Milena Vicenova, described the fall of the previous government halfway through the EU presidency as most unfortunate. The Czech Republic took over the running of the EU on January 1, and immediately had to address a number of international crises - including the conflict in Gaza and the gas crisis between Russia and Ukraine.

News Saturday, May 9th, 2009 By: Jan Richter
Sweden ready to help Czechs with EU presidency

In related news, Sweden is ready to assist the Czech Republic with the remainder of the country's presidency of the European Union, the Swedish PM Fredrik Reinfeld told Swedish Radio on Friday. Mr Reinfled said his country, which will take over the presidency in July, is now facing higher responsibility because of the fall of the Czech government halfway through the presidency. The Swedish leader said that instead of waiting for the end of the Czech term at the EU's helm, it was better to provide assistance to the new Czech government to successfully complete the presidency. In June, the EU will hold an important summit that will deal with the situation in Ireland and will also elect the new head of the European Commission.

News Sunday, May 10th, 2009 By: Jan Richter
Jakl: Lisbon ratification will not be complete without Klaus' signature

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Ladislav Jakl, a secretary of the Czech President, Vaclav Klaus, told

Czech TV on Sunday that the ratification of the Lisbon treaty by the Czech Republic will only be completed after it is signed by the president. Czech Foreign Minister Jan Kohout said that the president should sign the treaty but refused to give an opinion on whether the Czech head of state is obliged to do so. President's secretary Jakl also said that there are already enough senators to petition the Constitutional Court with a further review of the treaty.

The Czech president is a staunch critic of the EU's reform document; Social Democrat Senator Alena Gajduskova told the news website tyden.cz that the president could be impeached if he refuses to sign the treaty that had been approved by both chambers of the Czech Parliament.

News Monday, May 11th, 2009 By: Daniela Lazarova
President and Senate argue over Lisbon treaty

The Czech president and the Senate are engaged in a war of words over the ratification of the Lisbon treaty in the Czech upper chamber last week. Shortly after the vote, President Klaus said the treaty's ratification was a failure by the country's political elite to defend Czech interests. On Monday Senate chairman Premysl Sobotka hit back, reminding the Czech president that the upper chamber was a sovereign legislative body to which Mr. Klaus owed his reelection as head of state. Earlier, Senate Deputy Chairwoman Alena Gajduskova voiced the opinion that impeachment proceedings could be started against the president if he failed to respect Parliament's decision and sign the Lisbon treaty. Mr. Klaus has made it clear he would not be signing the Lisbon treaty any time soon, and pronounced it to be "dead" on the grounds of the Irish referendum.

News Tuesday, May 12th, 2009 By: Chris Johnstone

PM Fischer visits EU headquarters in Brussels

The new Czech Prime Minister Jan Fischer is visiting the EU headquarters in Brussels on Tuesday in a bid to shore up confidence in his country's EU presidency following a change-of-guard in Prague. The interim prime minister expressed the hope after a meeting with European Commission President Jose Manuel Barroso that the Czechs should complete ratification of the EU's reforming Lisbon treaty soon. Only President Vaclav Klaus is holding up the process of by refusing to sign the treaty into law. Mr Fischer added later that President Klaus should not chair the EU's June summit. He was later scheduled to meet employment commissioner Vladimir Spidla and Belgian Prime Minister Herman Van Rompuy. Prime Minister Fischer has repeatedly stressed that his interim government would do its utmost to ensure a smooth transition and fulfil the country's role as EU leader.

President Klaus to meet with Libertas head Declan Ganley

The Czech president is to receive the head of the eurosceptic party Libertas Declan Ganley at Prague Castle on Wednesday. Mr. Ganley last week welcomed the Czech president's decision not to sign the Lisbon treaty into law, despite its ratification by both houses of Parliament. Libertas's leader said President Klaus was standing by the people of Ireland and would not ratify the treaty without their consent.

Civic Democrat Senator says anti-Lisbon challenge to be ready within two months

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In related news, one of the Civic Democrat senators leading moves to launch a new challenge at the Czech Constitutional Court to the EU's Lisbon treaty has said it should be prepared within two months. Senator Jiri Oberfalzer made the comments after a meeting with Czech President and eurosceptic Vaclav Klaus. He added that he already had the 17 signatures needed to launch the challenge. The Senate vote last week in favour of the Lisbon treaty has opened up a war of words with President Klaus who has attacked what he described as a betrayal. Senate chairman Premysl Sobotka has hit back, reminding the Czech president that the upper chamber is a sovereign body to which Mr. Klaus owed his re-election as head of state.

News Wednesday, May 13th, 2009 By: Rosie Johnston

President Klaus to meet with Libertas head Declan Ganley

Czech President Vaclav Klaus is receiving Declan Ganley, the head of the eurosceptic party Libertas, at Prague Castle on Wednesday. Mr Ganley last week welcomed the Czech president's decision not to sign the Lisbon treaty into law, despite its ratification by both houses of Parliament. Libertas's leader said President Klaus was standing by the people of Ireland and would not ratify the treaty without their consent. Mr Ganley led the initial referendum campaign in Ireland which ended up rejecting the Lisbon treaty and his party is now putting up candidates across Europe for European Parliament elections in June. President Klaus also opposes the Lisbon treaty as an attack on national sovereignty.

State of the environment in CR after the Velvet Revolution

http://www.env.cz/www/dav.nsf/rocenka_04/index_en.htm
http://www.czso.cz/csu/redakce.nsf/i/zivotni_prostredi_zem

ENVIRONMENTAL PROTECTION INVESTMENT

Source: Confederation of Industry of the Czech Republic (based on CSO data)
http://www.spcr.cz/statistika/zivpro.htm

Investment for environmental protection, CZK bn

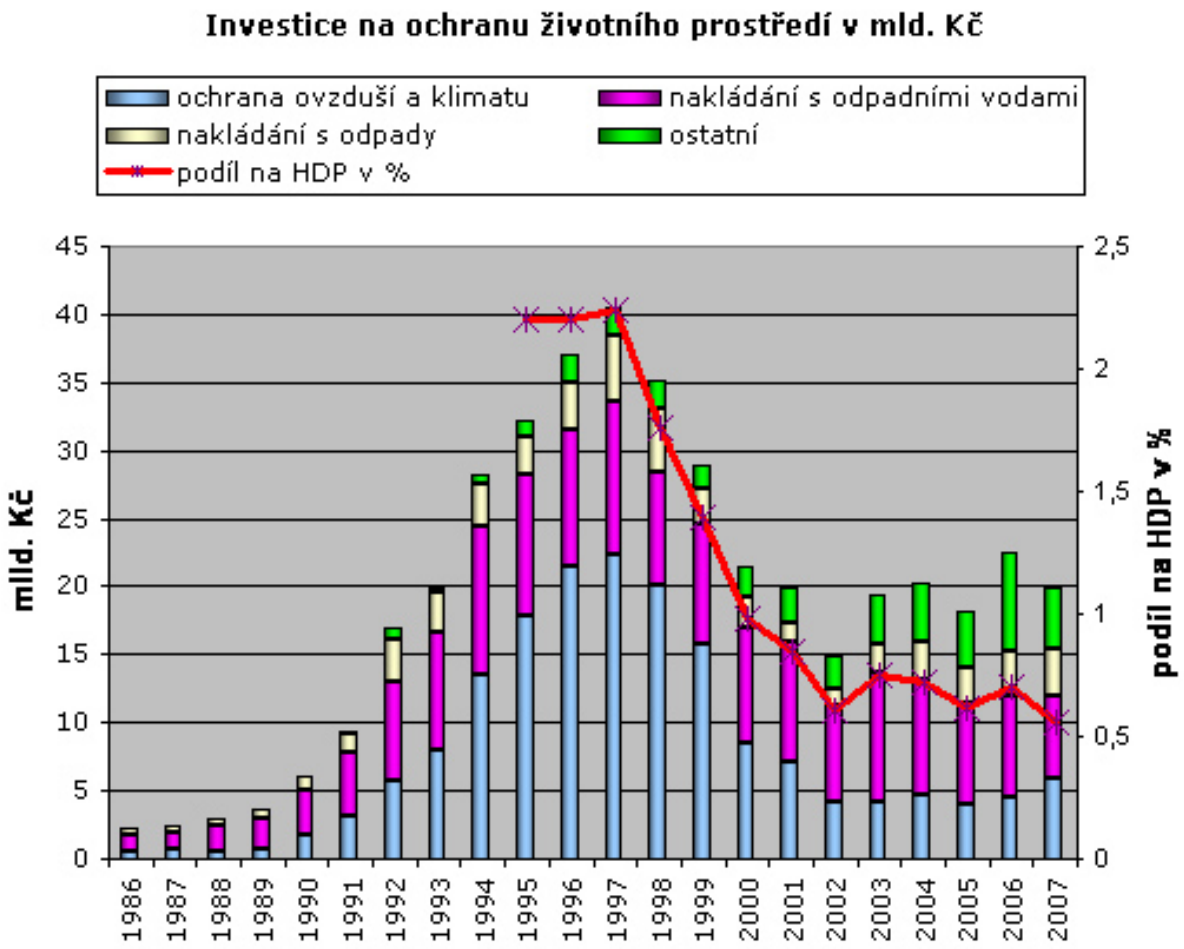
The data includes

- purchases of long-term tangible property for environmental protection
- non-investment cost of environmental protection (environmental activities)

Investment into LT tangible property growing rapidly between 1990 and 1997, then falling, stabilizing around CZK 20bn which is still much more than during communism)

The most dynamic sectors:

- protection of air and climate
- waste water management



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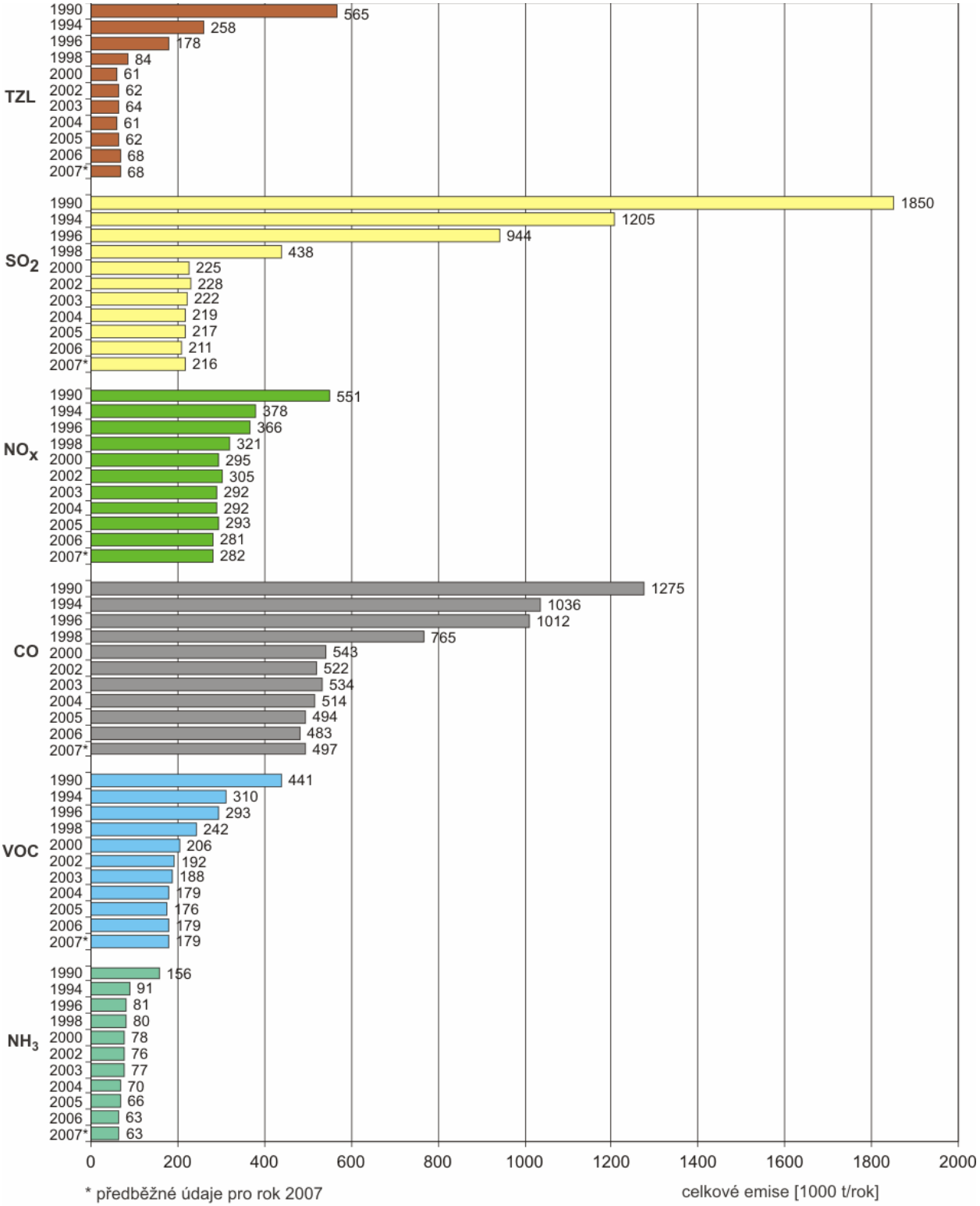
left axis: CZK bn
right axis: as % of GDP
Legend (from to left to bottom right)

1) protection of air and climate (blue)
2) waste management
3) % of GDP (red line)
4) management of waste waters
5) others (green)

AIR

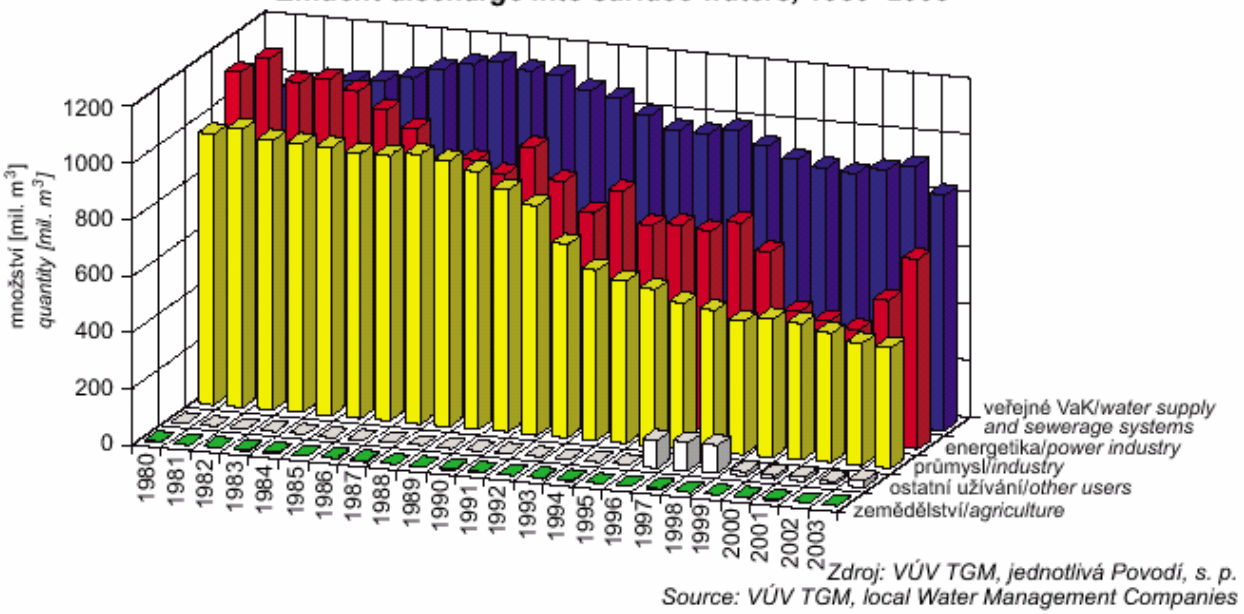
Total emissions of the basic pollutants in CR between 1990 and 2007 (Source: CMHU, unit: 1000tons/year)



Celkové emise základních druhů látek znečišťujících ovzduší v České republice, 1990–2007

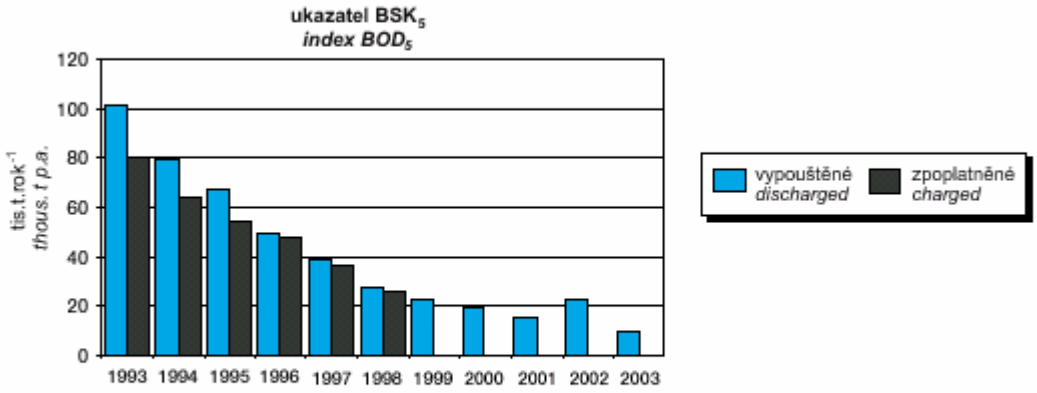
WATER (Source: T. G. Masaryk Water Research Institute, established by MECR)

Obr. B2.3.3 Vypouštění odpadních vod do vod povrchových, 1980–2003
Effluent discharge into surface waters, 1980–2003



Zdroj: VÚV TGM, jednotlivá Povodí, s. p.
Source: VÚV TGM, local Water Management Companies

Obr. B2.3.4 Vývoj vypouštěného a zpoplatněného znečištění z bodových zdrojů, 1993–2003
Discharged and charged pollution from point sources, 1993–2003



Pozn.: Vypouštěné znečištění udává souhm znečištění evidovaného správci povodí podle vodní bilance stanovené vyhláškou MZe č. 431/2001 Sb., o obsahu vodní bilance, způsobu jejího sestavení a o údajích pro vodní bilanci.
Note: The discharged pollution corresponds to the sum of pollution registered by the administrators of the watercourse on the basis of the water balance laid down by MA Decree No. 431/2001 Coll., on the content of the water balance, manner of drawing up thereof and on data for the water balance.

Zdroj: Výzkumný ústav vodohospodářský T.G.M., jednotlivá Povodí, s. p., ČIŽP
Source: T. G. Masaryk Water Management Research Institute, local Water Management Companies, ČIŽP

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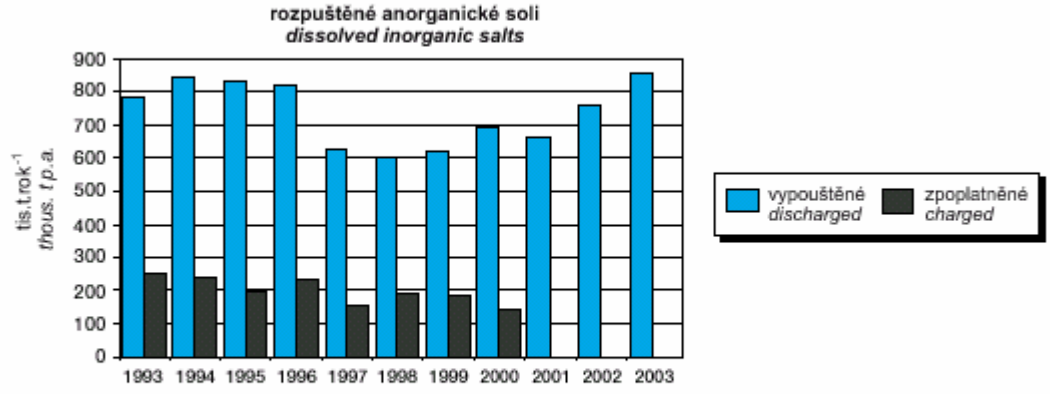

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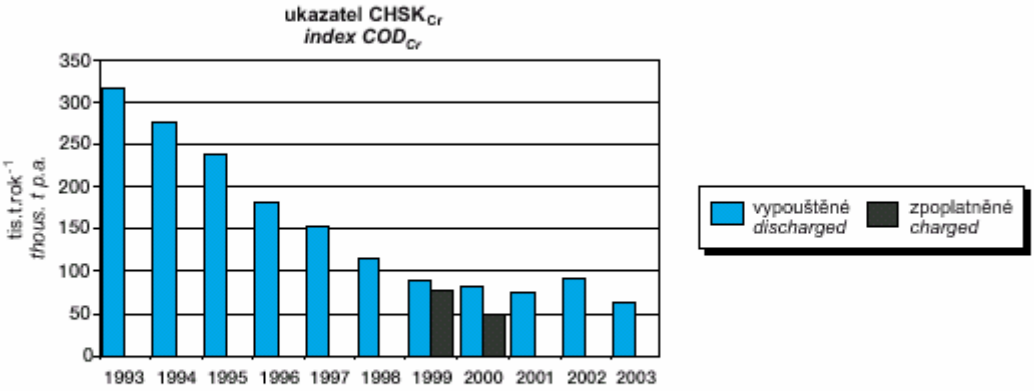

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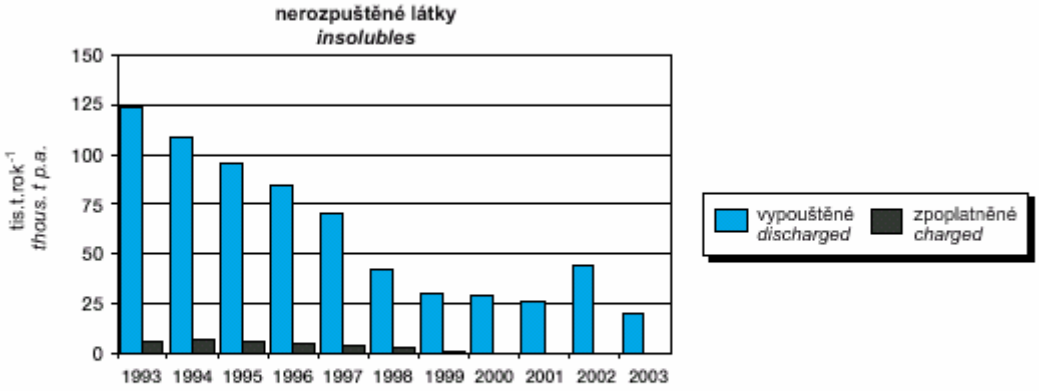

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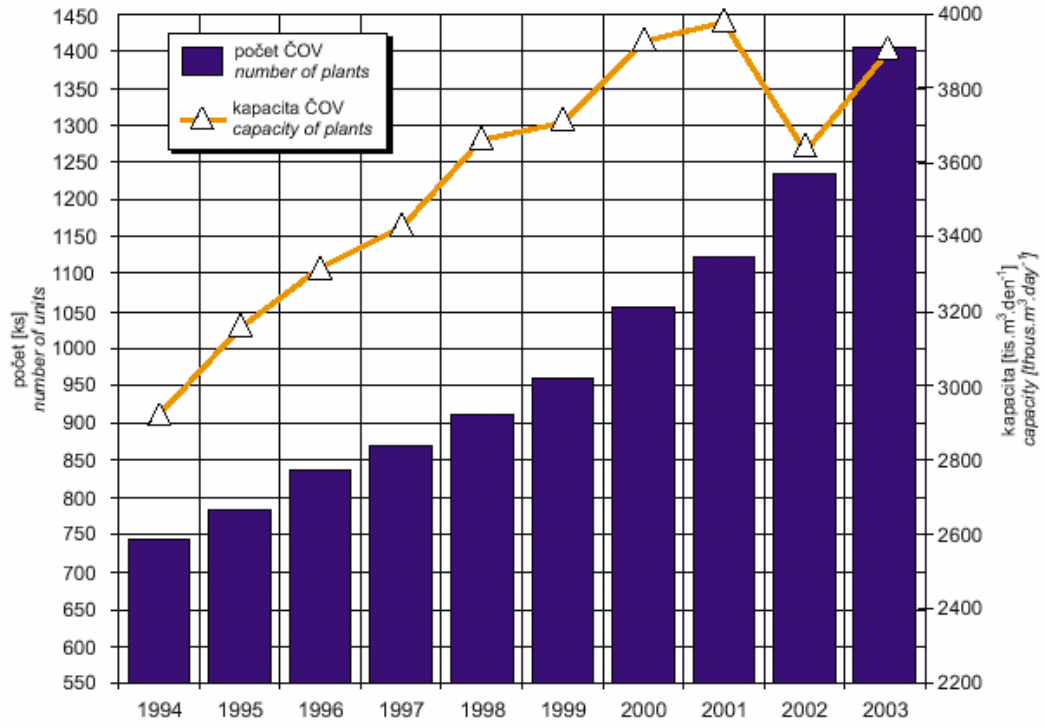
Obr. B2.3.6 Čistírny odpadních vod, 1994–2003
Waste water treatment plants, 1994–2003

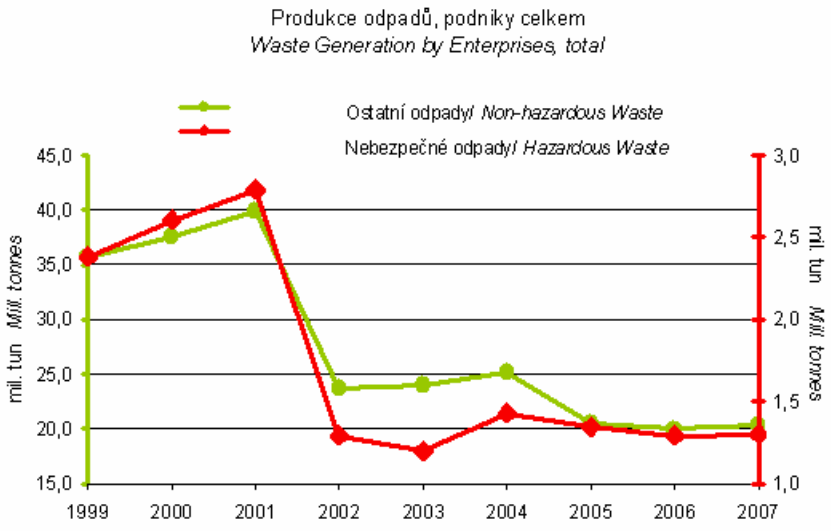


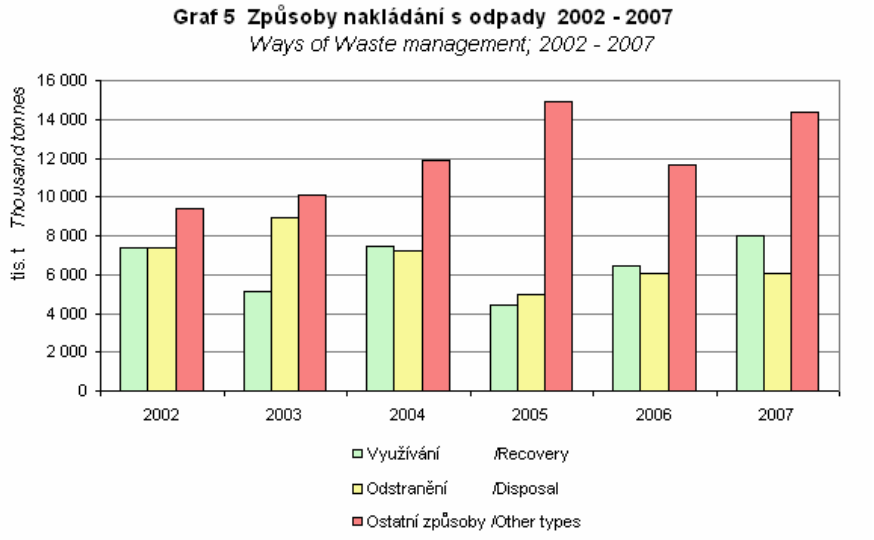
Pozn.: Pokles kapacity v r. 2002 byl způsoben vyřazením části čistíren z provozu povodněmi.
Note: The decrease in capacity in 2002 was caused by disablement of some plants caused by the floods.

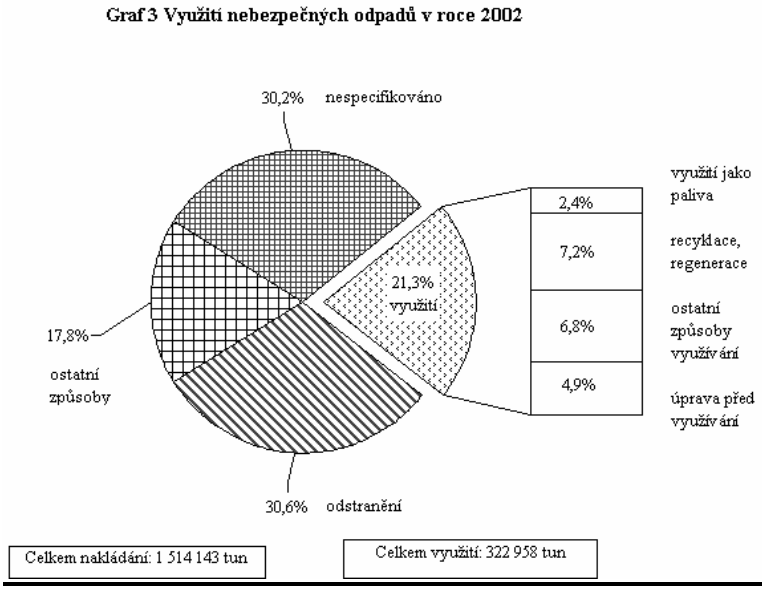
Zdroj: ČSÚ
Source: ČSÚ

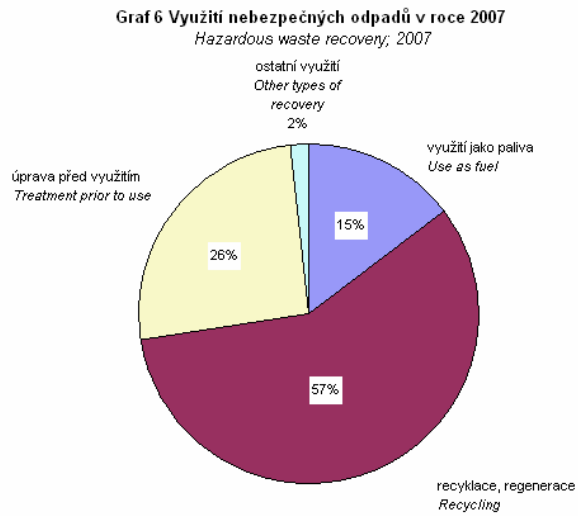
WASTE GENERATION (Source: CSO)

Total Waste generation by Enterprises









In 2002 – Waste recovery
of that recycling 34%, use as fuels 11%, treatment prior to use 23%
In 2007- share of Waste recovery only slightly up (see the first graph),
of that recycling 57%, use as fuels 15%, treatment prior to use 26%

Transport

National system of certification of environmentally friendly tourist-traffic services

Regulations on
- > setting limit values for noise (and related)
- > on use of bio-fuels in transportation
- > consumption taxes
- > implementation of charging the throughput on speedways and on first class roads

Source: (all data) MECR: Transport study with respect to environment (2006)
Studie o vývoji dopravy z hlediska životního prostředí v České republice za rok 2006 (pdf, 3 MB)

Tab. 4.1 Dopravní výkony silniční dopravy [mld. vozokm]
Road traffic volumes [billion vehicle km]

Druh dopravy *Transport mode*	Rok / Year		
	1995	2000	2005
Osobní *Passenger cars*	25,0	31,21	36,34
Nákladní *Freight vehicles*	6,27	8,79	9,21
Celkem* *Total*	31,54	40,0	45,87
Z toho dálnice *Of which highways*	·	·	·
Osobní *Passenger cars*	1,87	2,69	·
Nákladní *Freight vehicles*	0,54	1,3	·
Celkem *Total*	2,41	3,99	·

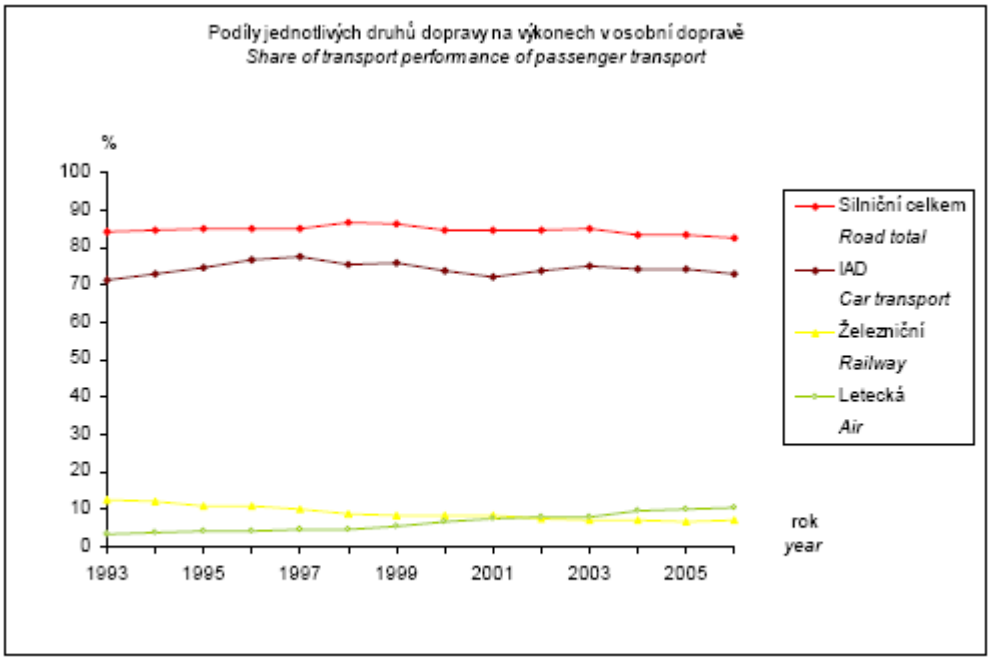
* zahrnuty i dopravní výkony motocyklů / *motorcycle traffic volumes included*
· údaje nejsou k dispozici / *data is not available*

Zdroj: ŘSD, CDV
Source: ŘSD, CDV

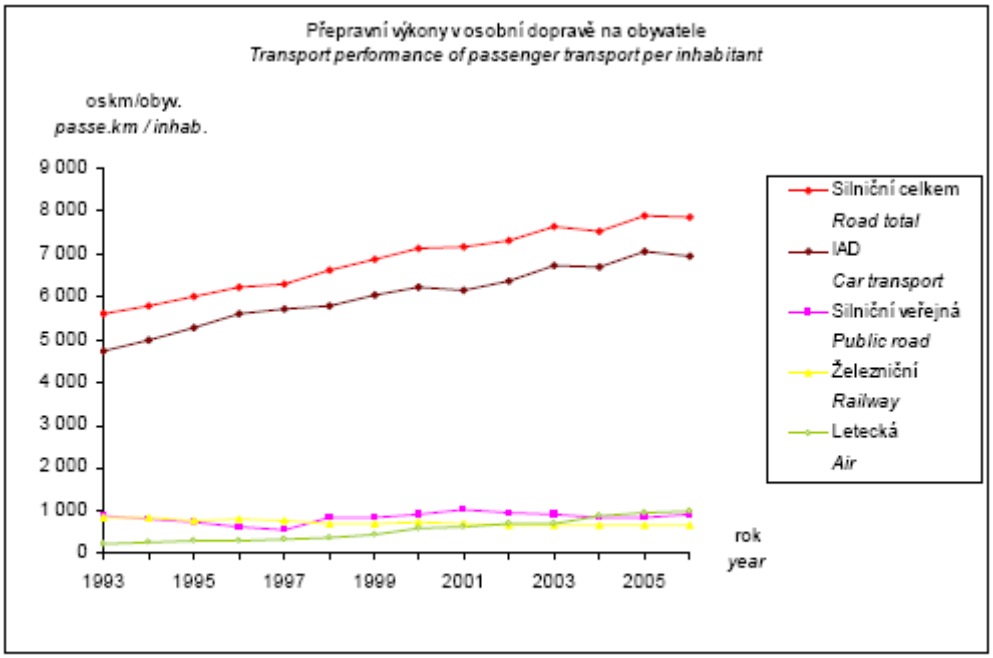
Tab. 4.6 Podíl na přepravních výkonech v osobní dopravě [%]
Share of transport performance in passenger transport [%]

Druh dopravy *Transport mode*	Rok / Year												
	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Silniční celkem *Road total*	84,3	84,9	85,0	85,2	86,47	86,27	84,78	84,38	84,71	85,13	83,29	83,16	82,55
IAD *Car transport*	71,1	74,4	76,7	77,6	75,49	75,76	73,96	72,29	73,77	74,82	74,07	74,32	72,88
Železniční doprava *Railway transport*	12,4	10,9	10,7	10,2	8,87	8,45	8,45	8,32	7,46	7,11	7,14	6,84	7,03
Letecká doprava *Air transport*	3,3	4,1	4,2	4,6	4,65	5,27	6,77	7,29	7,80	7,74	9,55	9,99	10,40
Vodní doprava *Inland waterways*	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,01

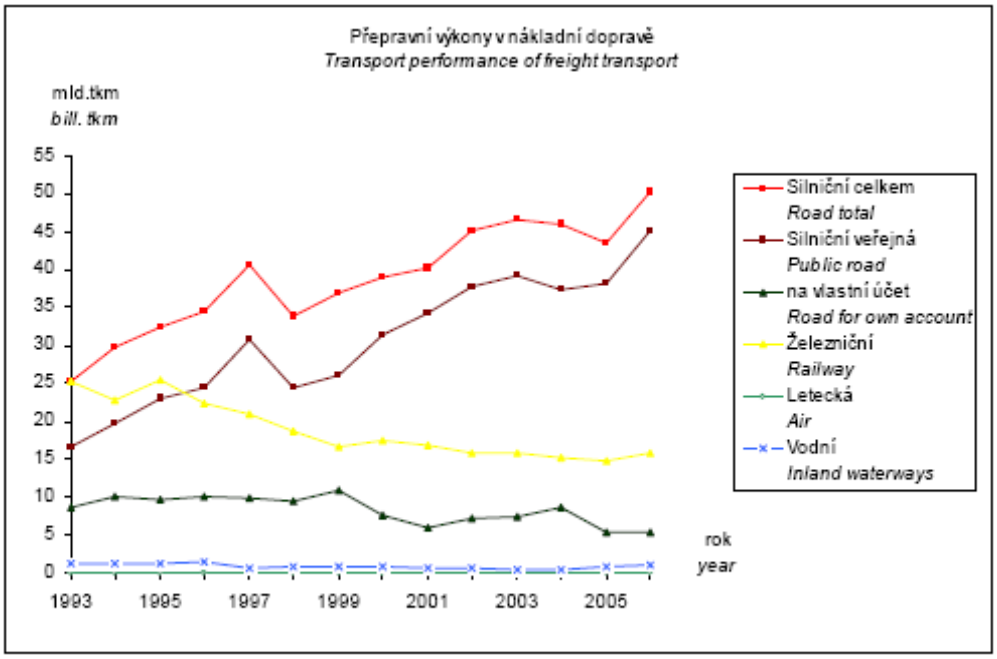
Zdroj: MD
Source: MD



Zdroj: MD
Source: MD



Zdroj: ČSÚ, MD
Source: ČSÚ, MD



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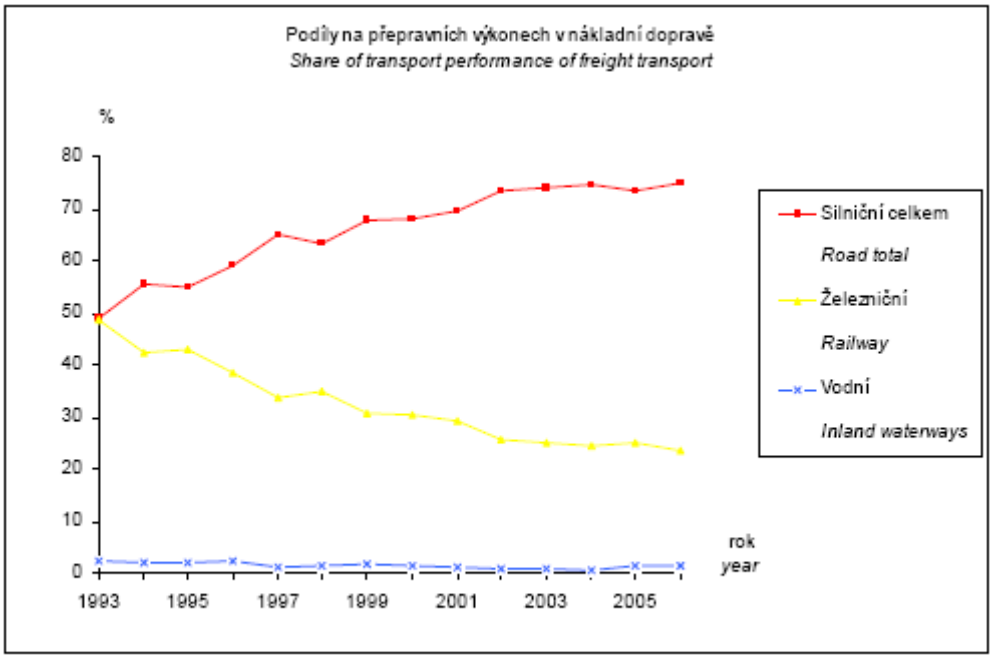

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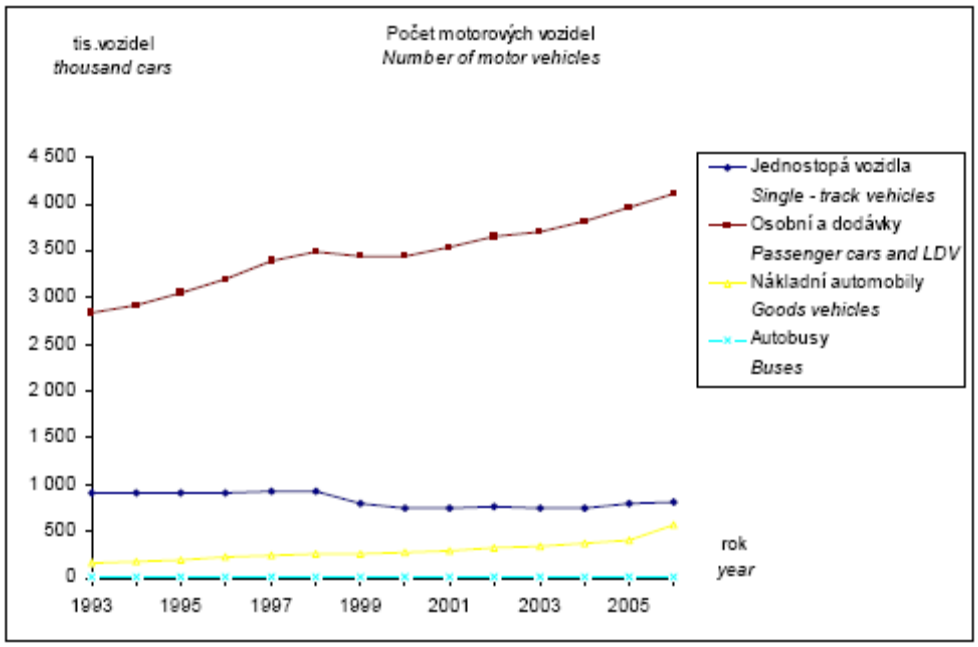


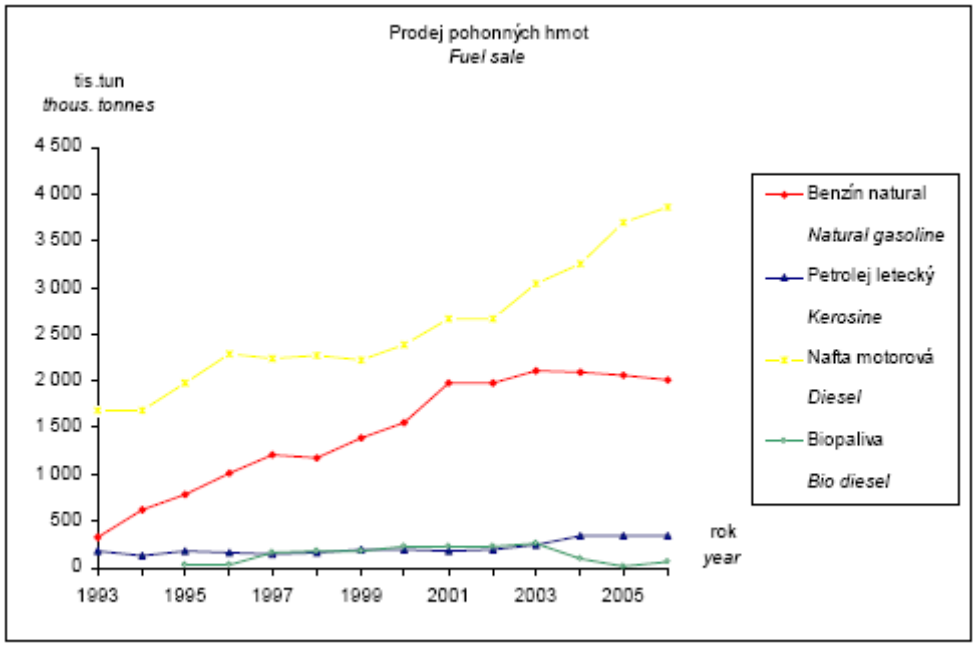
Zdroj: CRV,CDV
Source: CRV, CDV

Tab. 6.3 Počet vozidel na daná paliva [tis. vozidel]
Number of motor vehicles according to motor fuel [thousand cars]

Palivo *Fuel*	Rok / Year 2006
Automobilový benzín *Gasoline*	4 099
Motorová nafta *Diesel*	1 439
LPG *LPG*	117
CNG *CNG*	1,4
Elektrický pohon *Electric powertrain*	0,06

Zdroj: Centrální registr vozidel
Source: Vehicles central register

LPG=Liquefied Petroleum Gas, CNG= Compressed natural Gas

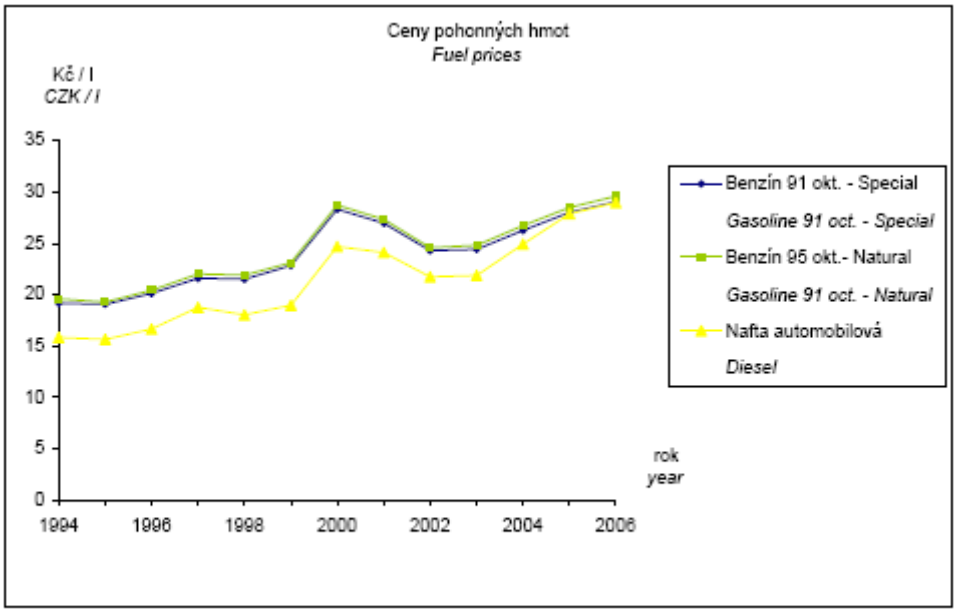


Zdroj: ČAPPO
Source: ČAPPO

Tab. 10.1 Ceny a zdanění pohonných hmot [Kč/l]
Prices and tax of fuels [CZK/l]

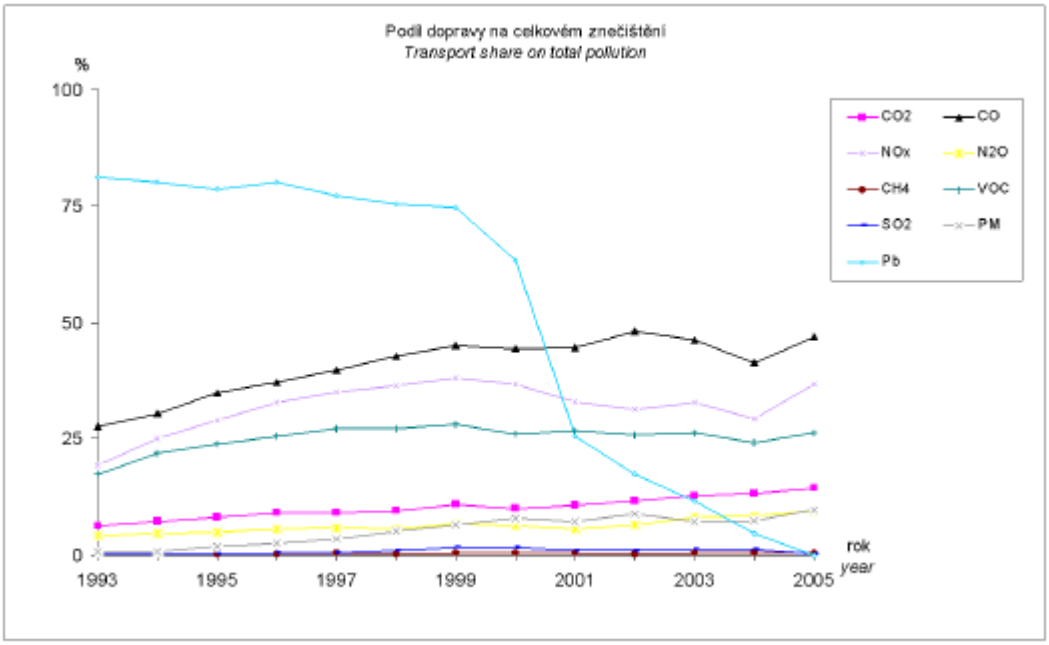
Rok Year	Benzín 91 okt. - Speciál *Gasoline 91 oct. - Special*				Benzín 95 okt. - Natural *Gasoline 91 oct. - Natural*				Nafta automobilová *Diesel*			
	Spotřební daň *Consumer tax*	Podíl spotřební daně na ceně *Rate of consumer tax on total price*	DPH *VAT*	Celková cena *Total price*	Spotřební daň *Consumer tax*	Podíl spotřební daně na ceně *Rate of consumer tax on total price*	DPH *VAT*	Celková cena *Total price*	Spotřební daň *Consumer tax*	Podíl spotřební daně na ceně *Rate of consumer tax on total price*	DPH *VAT*	Celková cena *Total price*
1993	8,10	45%	3,48	18,00	7,18	38%	3,56	19,05	6,95	44%	2,96	15,81
1994	8,60	45%	3,59	19,19	7,69	39%	3,66	19,59	6,95	44%	2,96	15,83
1995	8,79	46%	3,44	19,06	7,77	40%	3,48	19,29	7,03	45%	2,82	15,65
1996	8,79	44%	3,63	20,13	8,79	43%	3,68	20,42	7,03	42%	3,00	16,66
1997	8,79	41%	3,90	21,60	8,79	40%	3,97	22,01	7,03	37%	3,38	18,76
1998	9,71	45%	3,88	21,51	9,71	44%	3,95	21,90	7,31	41%	3,25	18,03
1999	10,34	45%	4,12	22,83	10,34	45%	4,17	23,12	7,74	41%	3,42	18,96
2000	10,84	38%	5,11	28,33	10,84	38%	5,18	28,71	8,15	33%	4,45	24,70
2001	10,84	40%	4,86	26,97	10,84	40%	4,93	27,33	8,15	34%	4,35	24,11
2002	10,84	45%	4,38	24,29	10,84	44%	4,43	24,57	8,15	38%	3,92	21,73
2003	10,84	44%	4,40	24,40	10,84	44%	4,47	24,81	8,15	37%	3,95	21,89
2004	11,84	45%	4,19	26,27	11,51	43%	4,27	26,73	9,95	40%	3,98	24,92
2005	11,84	42%	4,47	28,02	11,84	42%	4,55	28,48	9,95	36%	4,45	27,87
2006	11,84	41%	4,64	29,06	11,84	40%	4,72	29,59	9,95	34%	4,63	28,97

Zdroj: Celní správa
Source: Customs administration



Zdroj: Celní správa
Source: Customs administration

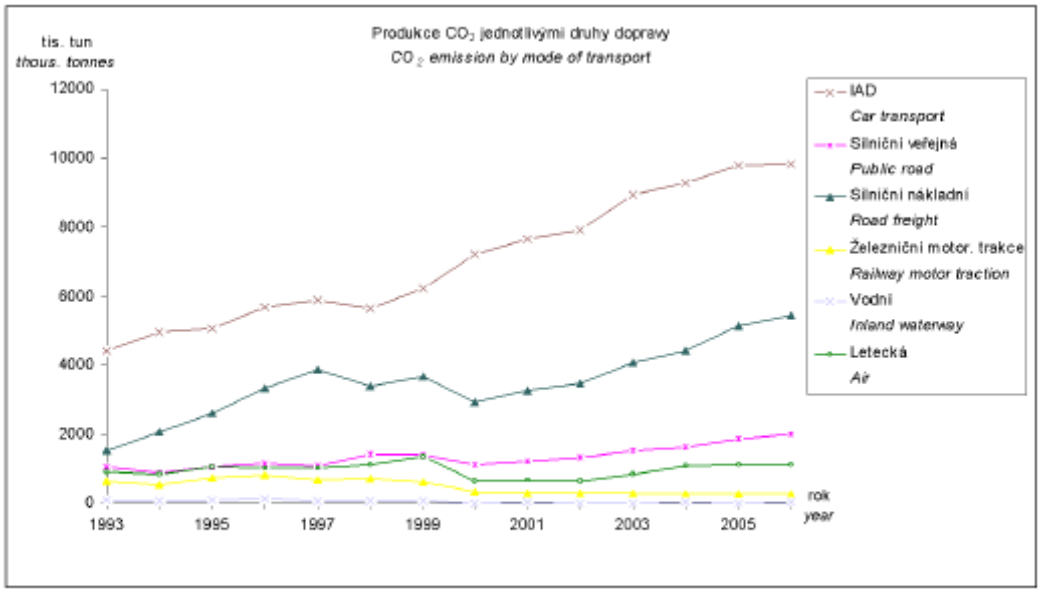
Pollution from transport in CR



Zdroj: CDV
Source: CDV

VOC= Volatile organic compound (organic chemical compounds that have high enough vapor pressures under normal conditions to significantly vaporize and enter the atmosphere. A wide range of carbon-based molecules, such as aldehydes, ketones, and other light hydrocarbons are VOCs. Wikipedia)
PM= particulate matter or **fine particles (**tiny particles of solid or liquid suspended in a gas or liquid. Some particulates occur naturally, originating from volcanoes, dust storms, forest and grassland fires, living vegetation, and sea spray. Human activities, such as the burning of fossil fuels in vehicles, power plants and various industrial processes also generate significant amounts of aerosols (particles +gas). Wikipedia)

Individual pollutants by mode of transport:



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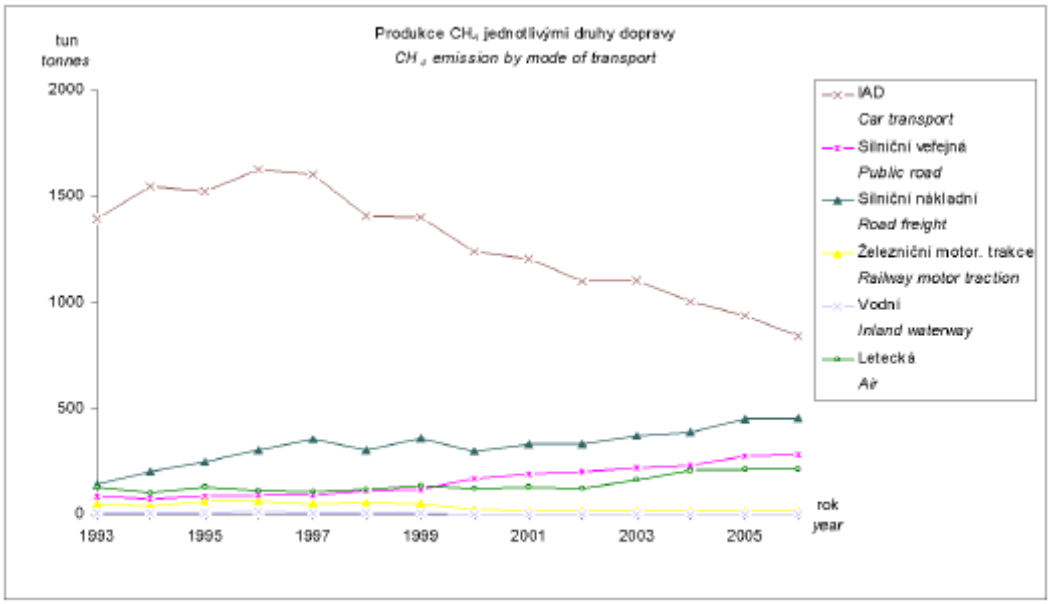

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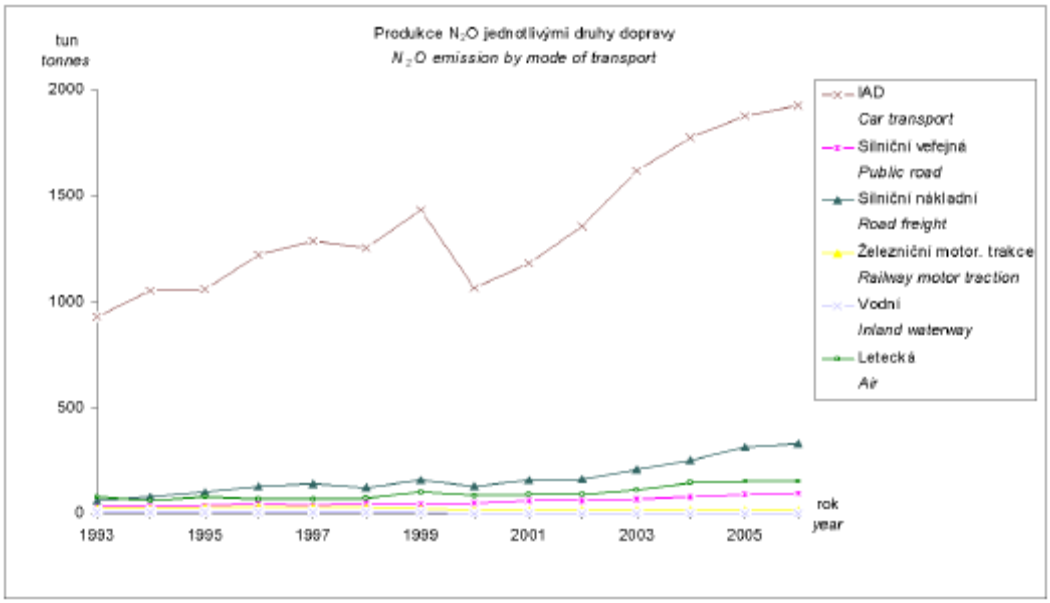

Zdroj: CDV
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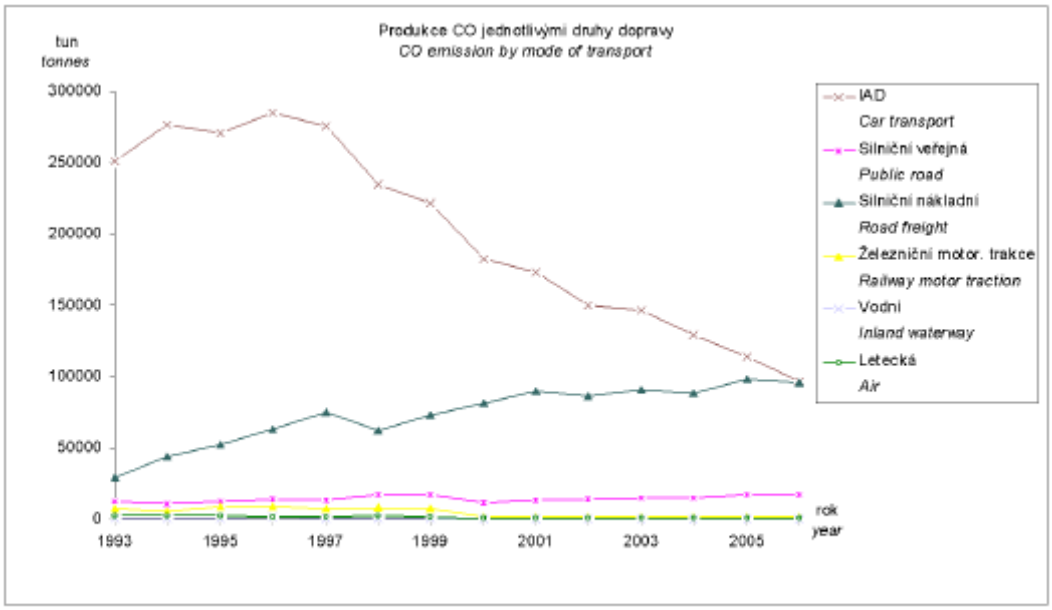

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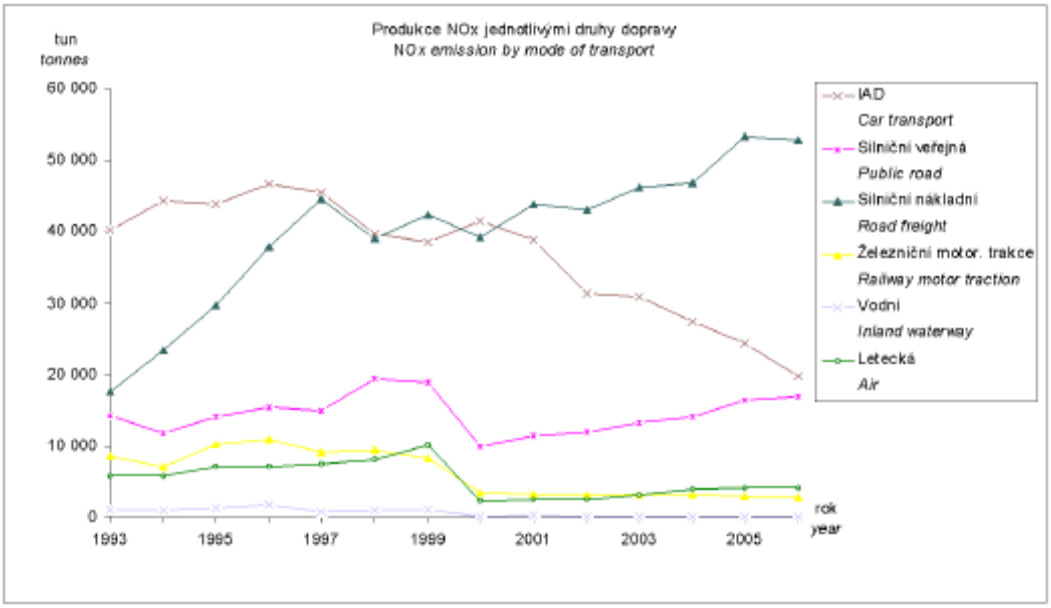

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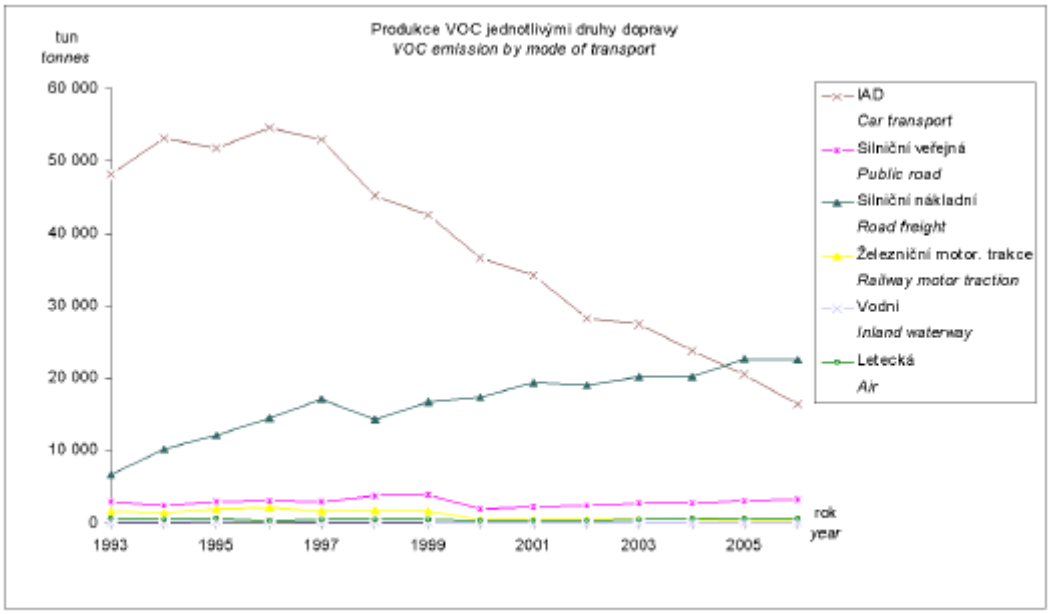

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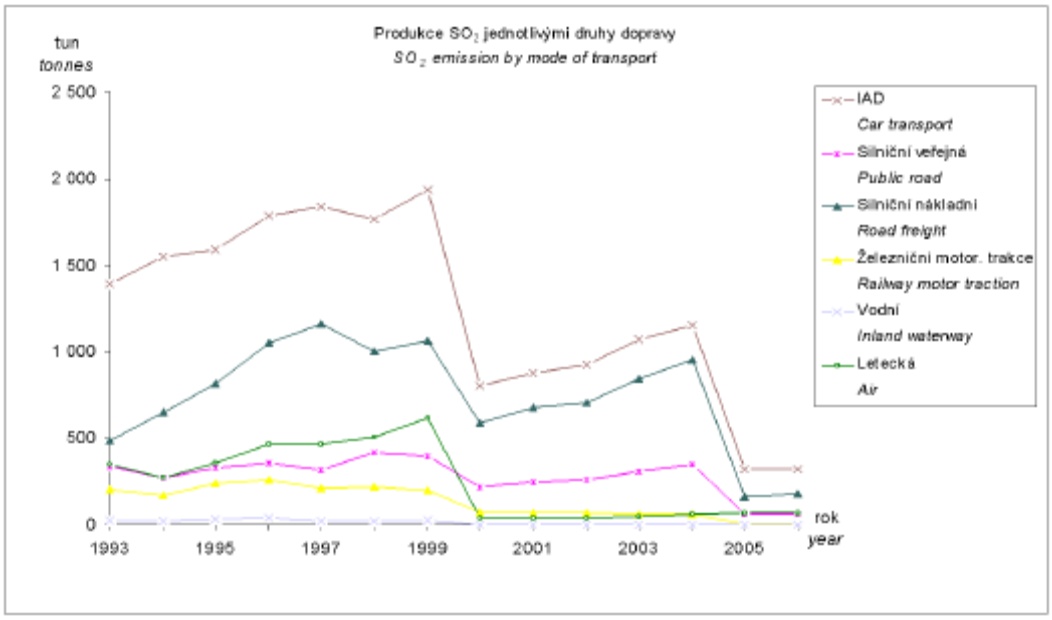

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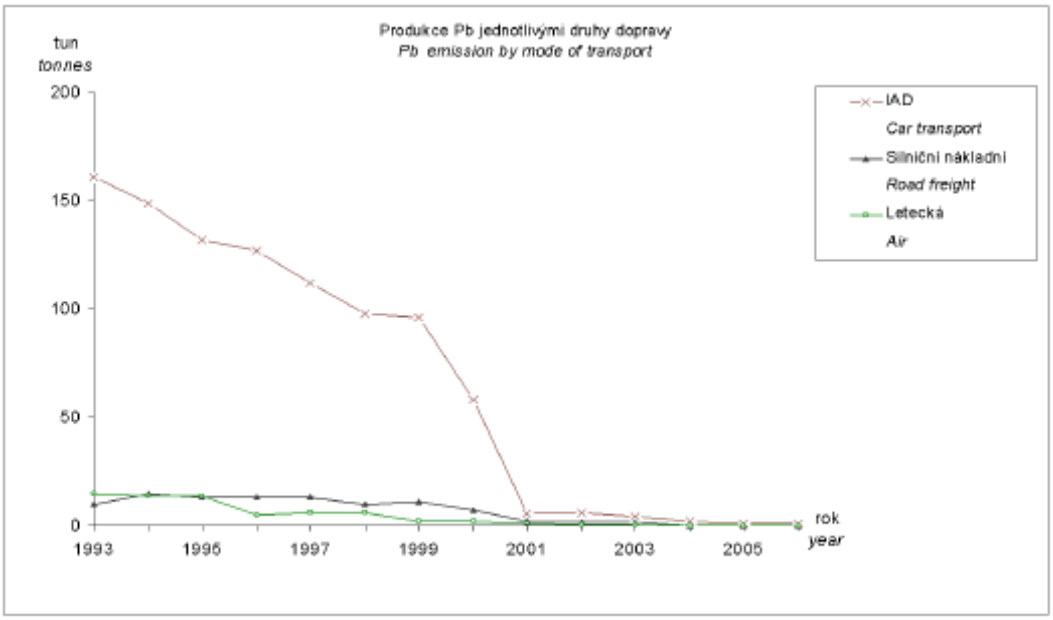

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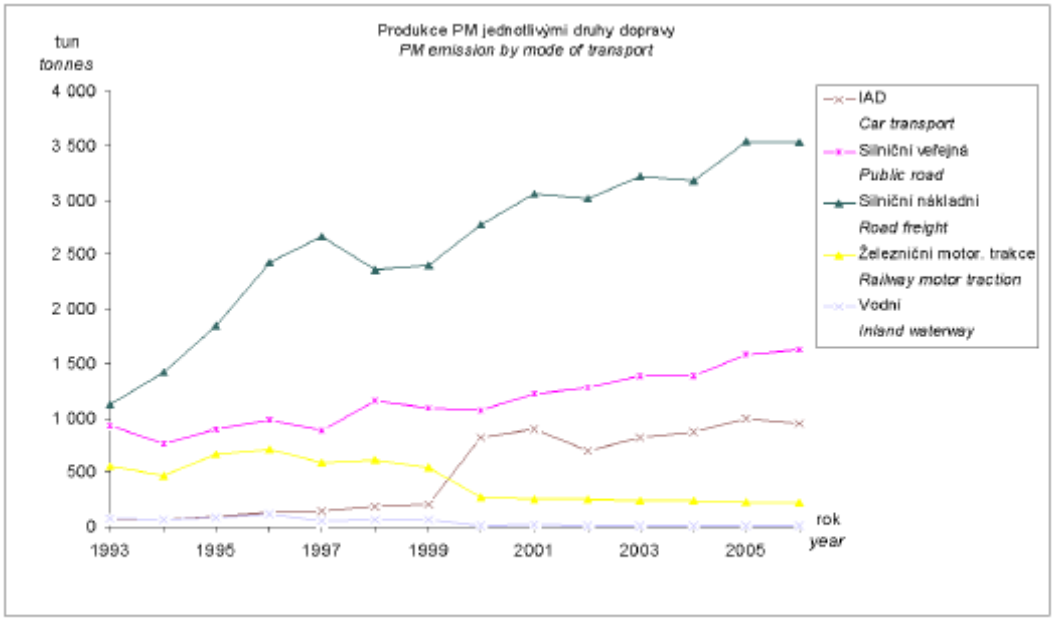


Zdroj: CDV
Source: CDV

TERM 2008: indicators tracking transport and environment in the EU (JK AO), based on *EEA Report 3/2009*

TERM = Transport and Environment Reporting Mechanisms , a result of the 1998 Cardiff EU meeting

Demand for both passenger and freight transport continues to grow

> freight transport

Freight transport volumes continue to grow, with the largest increases occurring in the least energy efficient means of transport — road and air freight. A shift towards less energy intensive modes, notably rail and maritime transport, is desirable. There is also a potential for energy savings via better use of the road transport fleet.

- o total volume in ton-kms increased by 35% between 1996 and 2006 (this clearly the consequence of trade barriers falling by the wayside, good example of need for holistic thinking)
- o largest increases in the least energy efficient segments – road (45%) and air (43%); maritime (33%), inland waterways (17%), railways (11%)
- o CO2 emissions largest for road and air transport
- o + emissions of NOx, PM10, noise, congestion

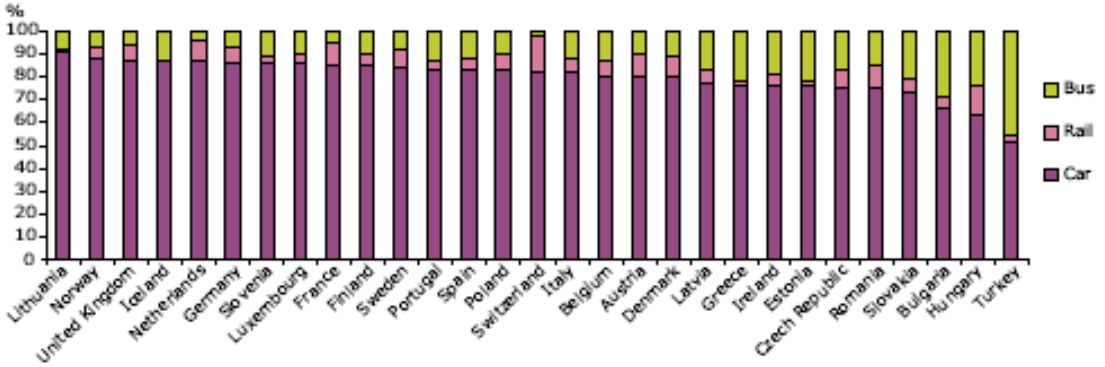
> passenger transport

Passenger travel by road and air has continued to increase throughout the EEA member countries. Levels of growth have been particularly pronounced in eastern Europe where increases in air travel have been fuelled by the expansion of low-cost carriers and car ownership levels are converging with those of western Europe.

- o car ownership in EU-27 up by 22% (52mn cars) between 1996 and 2006
- o passenger car use up by 18% (much more so in the transition economies than the “old” European countries)
- o intra-EU air growth up by 8% in 2007,
- o intra-EU sea down to below 1% share, bus and coach down to 8% share, railways, tram and metro 7% share in 2006; cars 73% share in 2008
- o no data on non-motorized transport (bicycles but recall the City of London example)

Figure 3.2 Passenger transport modal split in 2006 (without aviation)

The modal split for passenger transport was dominated by the private car in all EEA member countries. Bus travel had the second largest modal share in all but five European countries. Between 1996 and 2006 passenger demand for rail remained stable or grew in all EU-15 member States except in Austria. In contrast, rail transport in all EU-12 Member States countries experienced a major slump, falling to a record low in Lithuania (7 % of the 1990 level) and in Estonia (17 %) due to market reorientation and low investment. A more detailed breakdown is available in Table A.4 of Annex 3 on data.



Note: The Switzerland data are for 2005.

Source: Eurostat, 2008.

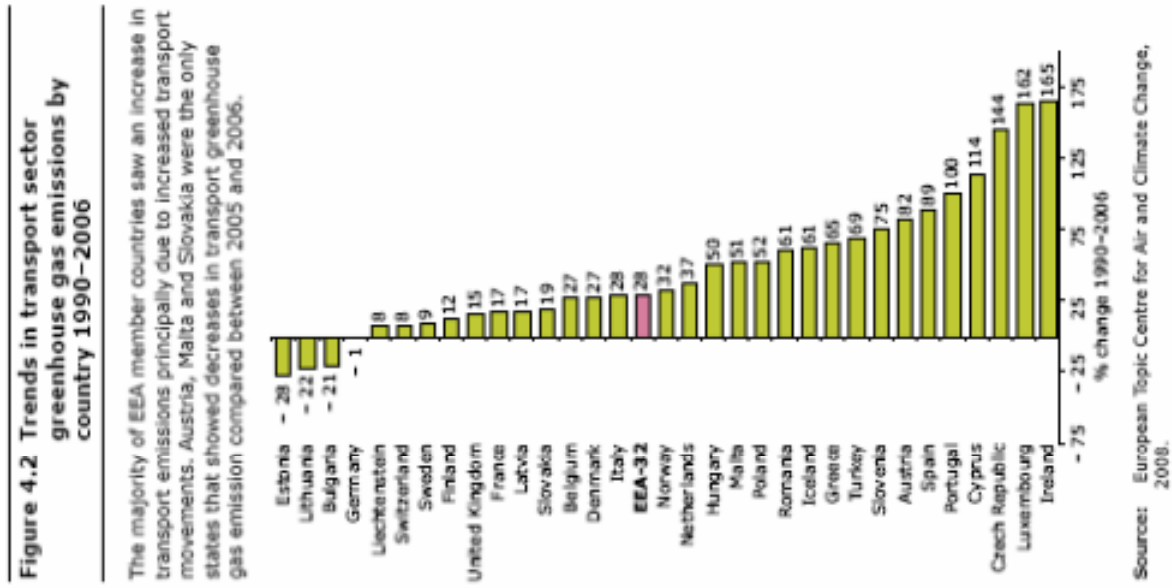
> need to optimize the transport system logistically as well as economically (problem: don't want to eliminate one issue and create another one -> need for cost-effective measures addressing several problems simultaneously, cross-sectoral approach (e.g. impact of trade and production policies on transport demand and environment as such)

> Transport is one of the main contributors to CO2 emissions (about ¼ of all GHG output), air and maritime showing the highest growth of GHG emissions the last decade => yet not included in Kyoto protocol, no mandatory reductions set (but plans to include aviation into EU ETS starting 2012)

> GHG – EU targets a 20% reduction by 2020; between 1990 and 2006 emissions up by 27% (excl. int. aviation and marine sectors)

> no significant improvements in concentrations of fine particulates (PM10) and NOx

> NOISE – almost 67mn people (=55% of people living in agglomerations ≥ 250 000) exposed to noise levels exceeding the EU benchmark for excessive noise (Environmental Noise Directive 2002, standardized Noise data) – road and airport noise, railway noise



Reduction measures:

> noise barriers, investments into windows insulations, technical improvements to vehicles and roads (low-level tires, roads), land-use planning (separating noisy links from densely populated areas), restrictions (banning noisy vehicles, reducing traffic levels, night-time restrictions, etc), noise related charges (airports)

> promoting and improving the quality of public transport and railways, walking and cycling, product labeling, reduction of empty runs (mainly freight transport), car share schemes, park-and-ride

> pricing, transport demand management

> Low emission zones in 70 cities across 8 countries, see below

> Fuels: shift from gasoline to more energy efficient diesel (avg annual demand for diesel up 4.4%, gasoline down 1.4%); biofuels (limited room for production, ethical concerns as well, also in heating and power sector; by 2020 up to 8% of road fuels)

Table 1.1 Impacts of alternative environmental policy measures

	Local air pollution (human health)	Long-range air pollution (human health, ecosystem damage)	Noise	Emissions of GHGs	Fragmentation (biodiversity)	Barrier effects
Exhaust emission abatement and cleaner fuel.	+	+	+/–	+/–	0	0
Quieter vehicles, trains, aircraft and ships	0	0	+	+/–	0	0
Improving energy efficiency of a mode of transport	+	+	+/–	+	0	0
Shift from individual to public transport	+	+	+/–	+	0	+/–
Renewable fuels	+/–	+/–	0	+	+/–	0
Improved physical planning	+	+/–	+	+/–	+	+
Speed reduction	+	+	+	+	0	+
Demand management and decreased traffic growth	+	+	+	+	+	+

Note: + = positive effect; 0 = in principle no effect; +/– = effect uncertain/depends on implementation.

Box 5.1 Selected examples of Low Emission Zones in Europe

Austria: A permanent 'motorway LEZ' in Tyrol applies to heavy goods vehicles with trailers and tractor-trailers over 7.5 tonnes and has a current emission standard of Euro II.

Czech Republic: The environmental zone in Prague has a weight restriction in place, which prevents vehicles weighing more than 3 500 kg from entering the city centre. The measure has encouraged heavy vehicles to use alternative routes and a shift towards more environmentally friendly vehicles.

Germany: A national framework currently operating in 12 cities sets out emissions classes for different vehicles. Petrol vehicles that meet Euro 1 standard with a catalytic converter fitted and diesel vehicles that meet Euro 4 or Euro 3 for PM_{10} can enter cities unrestricted.

Greece: Cars may only access the inner traffic ring of Athens on alternate days. Those with number plates ending in even numbers may access on even days and vise versa.

Sweden: LEZs are in operation in Stockholm, Malmo, Lund and Gothenburg. Heavy goods vehicles must be a minimum of Euro II standard or less than six years old to enter unrestricted.

Discuss:

Economic challenges provide transport policy opportunities

The international economic outlook has altered significantly in the past year. Whereas 2008 commenced with projections of sustained growth, it closed with fears of an extended worldwide recession. Addressing the environmental challenges will not be easy and is likely to require considerable investment.

It is important to recognise, however, that the environmental problems confronting Europe are also being faced by other world regions. And the fact that responses designed in one region may be relevant elsewhere potentially creates economic and business opportunities. Shortly after taking office at the start of 2009, President Barack Obama declared the intention of reducing greenhouse gas emissions from new vehicles — an area where European automakers have a large lead over their US counterparts. Investments already made may now provide export opportunities either as licences, joint ventures, sales via US-owned subsidiaries or as direct exports. Being a 'first mover' often implies taking on costs and risk but can confer commensurate rewards, including allowing Europe to define or inspire the international standards for a greener economy.

Biofuels illustrate the possibilities for Europe to take the lead. As noted in Chapter 6 of this report many countries are, as Europe, setting biofuels targets. In order to manage the potentially negative impacts of expanding biofuels production on biodiversity and land use, the EU is pioneering the development of sustainability standards for biofuels. Including sustainability criteria in the EU's Energy and Climate Change Package agreed in December 2008 does not yet completely guarantee against negative impacts and there are still gaps to fill concerning methodologies for assessing indirect land-use changes. Nevertheless, the EU has a clear opportunity to impact global development of the biomass-for-energy market and thereby win influence and business opportunities as well.

Noise — now firmly on the EU agenda

8 The need for demand management

Rising transport demand is driven by economic growth and structures, but can be influenced, particularly with respect to the mode of transport used. Efforts to steer urban development in particular can have an important effect on transport demand growth, although the response is often slow. However, congestion charging and parking fees are methods that can very rapidly influence both traffic levels and choice of transport mode.

Box 8.3 Spreading information on sustainable transport modes

A 'mobility centre' is a travel centre office or kiosk area that offers travel information to the public. The advice given is on all modes of transport, with a focus on public transport, cycling and walking. It also provides information on car sharing, more efficient routes of travel and cheaper travel options.

Mobility centres can be tailored to fit a number of different needs; they may provide general overall coverage to a wider public or may provide personalised advice to individuals. Travel information can be provided on personalised public transport timetables, journey planning, and local knowledge.

Mobility centres are often found in regional or local tourism centres, offering transport advice along with general tourist advice and information through internet platforms (Information on the Flemish Mobility Centre is available at: www.slimweg.be.) An additional effect of mobility centres is that they raise the profile of transport issues within the local community, providing a central reference point for all local and national transport queries (DfT, 2005).

Box 8.1 Impacts of planning instruments on modal split in Vienna

The Vienna transport master plan, adopted in 2003, emphasised the need for more sustainable transport and planning measures, such as public transport, to be used to link cities and regions. It also called for public space to be reused, cycling facilities to be significantly improved, and parking regulations to be revised. The plan has realised the following impacts:

- reduced occupancy of on-street parking spaces;
- significantly reduced parking violations;
- reduced time spent searching for vacant parking spaces;
- reduced total car traffic volume;
- increased occupancy of commercial garages;
- extra funds for garage construction and public transport improvements.

In 2001, public transport, cycling and walking accounted for 64 % of all travel in the Vienna region. It is anticipated that this figure will increase to 75 % by 2010 (Winkler, 2006).

Box 8.2 Car-sharing in Switzerland

The most successful car-sharing scheme in Switzerland is the 'Mobility cooperative', which has over 70 000 members and accounts for 2 % of total passenger transport nationwide. Members pay an annual flat fee and then reserve the vehicle — by phone or internet — and pay for their usage (by distance and time) by monthly bill. Members receive an annual travel pass, which allows them unlimited travel on railways and other public transport. The scheme is available in all villages with more than 2 000 inhabitants.

According to a 2006 study by the Swiss Federal Energy Office, every car-sharing customer produces approximately 200 kg of CO_2 per year less than would otherwise be the case: a total saving of 11 000 tons of CO_2 in 2005. This is primarily caused by a higher use of public transport, walking and cycling. The company aims to have a Mobility car available on every street corner and in some big cities this is already the case (Swissinfo, 2007).

Kotchen, Moore, Conservation: From Voluntary Restraint to a Voluntary Price Premium (AO)

Source: Env Reource Econ (2008) 40: 195 – 215

Does concern for behavior translate into predictabl =e consumer behavior?

- Do consumers that have such concerns voluntarilty constrain their consumption of goods and services that produce negative externalties? (voluntary constraint)
- Do consumers that have such concerns willing to pay a higher price for goods and services that are enivironmentally more benign? (volunt price premium)

Theoretical analysis

- assuming that no green electricity is available ...

  ➔ green electricity is electricity that is generated from renewable sources of energy, including wind, solar, and geothermal energy, as opposed to conventional electricity that is generated from coal ...

Proposition 1 *Conservationist households woll consume less convenitonal electricity than nonconservationist households*

„ ... relative to nonconservationists, conservationists care about a negative aspect of their conventional-electricity consumption ... .“ (p. 197) That’s becaue they experience „guilt“ from consuming conventional electricity.

- assuming that green electricity is available ...

Proposition 2 *If a nonconservationist household participates in the green-electricity program, then: (a) the household must enjoy a lump-sum benefit from participation; and (b) after participating, the household's electricity consumption will decline by as much as it would if there had been an increase in the price of conventional electricity equal to the premium for green electricity.*

Proposition 3 *If a conservationist household participates in the green-electricity program, then: (a) the household's electricity consumption can increase, decrease, or remain the same, and (b) if consumption decreases, the household must enjoy a lump-sum benefit from participation.*

Proposition 4 *If both conservationists and nonconservationists participate in the green-electricity program, then: (a) households of both types will consume the same amount of green electricity, and (b) conservationists will reduce their electricity consumption by less (if at all) than nonconservationists.*

Empirical analysis

- price premium for „green electricity" program?

- The case of Traverse City Light & Power and its wind turbine

  - 3year commitment

  - on average 25% increase in residental household's electricity bill

  - serving 122 households (out of 7,000
  - waiting list of 32

  - waiting list created immediately at the start of the program

- Survey data for all participants [106 responded] and those on the waiting list [27] and random sample of (846) non-participants [544], for a response rate of about 70%

  - "On average, non-participants have an annual household income that is about $10,000 lower, are 4 years older, have two fewer years of education, and are 30% less likely to be a self-reported member of an environmental organization." (p. 202)

- membership in an environmental organization seems a useful proxy variable to classify households as conservationists or nonconservationists (p. 206) … in that conservationists are more likely to participate in the green electricity program …

- "evidence that the classification as either conservationist or nonconservationist is distinct from participant or nonparticipant. In other words, 'participating nonconservationists' are not misclassified conservationists, and 'nonparticipating conservationists' are not misclassified nonconservationists.' (p. 205)

- interesting question: why would nonconversationists participate in such a program?

Economic theory suggest that they must receive in return some (lump-sum) benefit from it: "… these benefits may be related to social approval, prestige, and warm glow – the same motives that have been shown to motivate private provision of public goods." (p. 212)

- overall, "The empirical results are consistent with the theoretical predictions." (p. 212)

Letting the semester pass revue …

1 Introduction (history/outline) Feb 19 JK/AO

Lecture 1 (February 19) - JK/AO

Required readings

- Hoyt, Ryan, Houston, The Paper River: A Demonstration of Externalities and Coase's Theorem

- Plott, Externalities and Corrective Policies in Experimental Markets

Optional readings

- Cherry, Kroll, Shogren, Environmental Economics, Experimental Methods

- Horowitz, McConnell, Murphy, Behavioral Foundations of Environmental Economics and Valuation

- Greenstone, Gayer, Quasi-Experimental and Experimental Approaches to Environmental Economics

- Levitt, List, Field experiments in economics: The past, the present, and the future

2 Market failures: externalities, tragedy of the commons, enforcement as public good, also, (rise and fall) of the environmental Kuznets Curve February 26 AO

Required readings

- List, Neoclassical Theory versus Prospect Theory: Evidence From the Marketplace

- Plott, Externalities and Corrective Policies in Experimental Markets

- Zelmer, Linear Public Goods Experiments: A Meta-Analysis

- Cotten, Ferraro, Vossler, Can public goods experiments inform policy? Interpreting results in the presence of confused subjects (Cherry, Chapter 10)

- Stern, The Rise and Fall of the Environmental Kuznets Curve

- Yandle, Vijayaraghavan, Bhattarai, The Environmental Kuznets Curve. A Primer

3 Interventionist solutions to the Externality problem – Pigouvian taxes and standards and charges, also environmental labeling and incomplete consumer information in laboratory markets March 5 JK

Required readings

- Plott, Externalities and Corrective Policies in Experimental Markets

- Cason, Gangadharan, Environmental labelling and incomplete consumer information in laboratory markets

4 Interventionist solutions to the Externality problem – Marketable pollution permits March 12 AO

Required readings

- Burtraw, Palmer, Auction Design for Selling CO2 Emissions Allowances Put to Inaugural Test

- Portera, Rassenti, Shobe, Smith, Winn, The design, testing and implementation of Virginia's NOx allowance auction

- Cason, Gangadharan, Transactions Costs in Tradable Permit Markets: An Experimental Study of Pollution Market Designs

5 Non-Interventionist solutions to the Externality problem – The Coasian solution March 19 JK

Required readings

= Coase, The problem of social cost

- Hoffman, Spitzer, The Coase Theorem: Some Experimental Tests

- Harrison, McKee, Experimental Evaluation of the Coase Theorem

6 Non-interventionist solutions to the Externality problem – Self-regulation March 26 AO

Required readings

- Cason, Gangadharan, Auction Design for Voluntary Conservation Programs

- Evans, Gilpatric, McKee, Vossler, Managerial Incentives for Compliance with environmental information disclosure programs (Cherry, Chapter 13)

- Potoski, Prakash, Green Clubs and Voluntary Governance: ISO 14001 and Firms' Regulatory Compliance

- Potoski, Prakash, Covenants with Weak Swords: 1001 and Facilities' Environmental Performance

Optional readings

- Prakash, Potoski, Racing to the Bottom? Trade, Environmental Governance, and ISO 14001

7 Environmental Policy in the Czech Republic – History and current issues April 9 JK/AO

Required readings

- Axelrod, Nuclear Power and EU Enlargement: The Case of Temelín

- CENIA – website of the Czech Ministry of the Environment's information agency

- Environment Center of Charles University

- Deets, Kouba, The Czech Greens revived

- Jehlicka , Sarre, Podoba, The Czech Environmental Movement's Knowledge Interests in the 1990s: Compatibility of Western Influences with pre-1989 Perspectives

8 Environmental Policy in the EU – History and current problems April 23 (April 16 falls into Semester break and on Easter Holiday) AO

Required readings

- Camin, Vandeveer, Enlarging EU Environments: Central and Eastern Europe from Transition to Accession

- Carter, Transforming environmental policy: Does Europe lead the way?

- Hey, EU Environmental Policies: A Short History of the Policy Strategies

- Jehlicka, Tickle, Environmental Implications of Eastern Enlargement: The End of Progressive EU Environmental Policy?

- Kramer, EU Enlargement and the Environment: Six Challenges

- Kruzikova, EU Accession and Legal Change: Accomplishments and Challenges in the Czech Case

9 Environmental Policy in the world context – History and Current problems April 30 JK/AO

Required readings

- Kramer, Development of Environmental Policies in the United States and Europe: Convergence or Divergence?

- OECD, The Political Economy of Environmentally Related Taxes

- Godby, Shogren, Caveat emptor Kyoto, Comparing buyer and seller liability in carbon emission trading (Cherry, Chapter 3)

Optional readings

- Schleich, Rogge, and Betz, Incentives for energy efficiency in the EU Emissions Trading Scheme

10 Contingent valuation and related issues May 7 AO

Required readings

- Harrison, Harstad, Rutstrom, Experimental Methods and Elicitation of Values

- Murphy, Stevens, Contingent Valuation, Hypothetical Bias, and Experimental Economics

Optional readings

- Plott, Zeiler, The Willingness to Pay - Willingness to Accept Gap, the "Endowment Effect," Subject Misconceptions, and Experimental Procedures for Eliciting Valuations

- Plott, Zeiler, Asymmetries in Exchange Behavior Incorrectly Interpreted as Evidence of Endowment Effect Theory and Prospect Theory?