Schweizerische Eidgenossenschaft
Confédération suisse
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Federal Department of Environment, Transport, Energy and Communications, DETEC

Federal Office for Spatial Development ARE

Factsheet

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Overview of external transport costs

1. Background

External transport costs are costs which are not borne by transport users themselves, but by the general public and by future generations. According to Article 7 of the federal law on the distance-related heavy vehicle fee (*Bundesgesetz über eine leistungsabhängige Schwerverkehrsabgabe*), calculations for external costs and for transport itself must be reviewed periodically. In 2002 and 2005 the Swiss Confederation published a number of studies and updates of these costs with regard to accidents, noise, buildings and biospheres and biodiversity. The Federal Office for Spatial Development (ARE) and the Federal Office for the Environment (FOEN) are today announcing the findings of a new study which focuses on the costs of climate change. This study also examines other external costs relating to aspects of the environment that have previously been ignored (soil, agriculture, forests, etc.).

2. Broad overview of external transport costs

The external costs which are carried in the financial statements for transport in Switzerland total 6.5 billion francs. Of this figure, 6.05 billion francs is allotted to road transport and 0.4 billion to rail.

Broad overview of external transport costs, road and rail (in CHF m), 2000

	Road	Rail	Total costs
Accidents[1]	1,195	12	1,207
Noise	869	129	998
Health	1,525	100	1,625
Buildings	245	14	259
Climate[2]	826	2	828 (504 – 2,030)
Other environmental aspects	726	77	803
Biospheres and biodiversity	662	103	765
Total	6,048	437	6,485

[1] Data from the 1998 study, indexed in line with the Swiss wage index.

[2] Average of base values from both short and long-term perspectives.

It should be added that the external costs carried in the financial statements for transport are minimum values which cannot, at present, be calculated in their entirety. A new study is currently being conducted on the costs of traffic congestion. The findings of this study, in addition to a booklet summarising the various projects conducted to calculate external transport costs in 2000, should be available in the spring of 2007. The amounts reported above therefore represent very provisional, conservative estimates.

3. Key findings

3.1 Costs of climate change

The costs of climate change comprise the costs of avoiding greenhouse gas emissions plus the residual costs of the damage caused (including the costs of adapting economies to the changing climate). Given the complexity of the climate problem, as well as its long-term, global nature, estimates of external climate costs are fraught with a variety of uncertainties and can be given only in the form of scenarios. The reduction targets that are chosen have a decisive role to play here. The study distinguishes between two time frames to determine the costs of avoidance. One uses a short-term cost rate that is geared to the reduction targets laid down in the Kyoto Protocol, and the other uses an anticipated average cost rate for the next 50 years for a long-term scenario (2 degree target)[3].

Quantifying climate damage is much more complex than calculating the cost of possible avoidance strategies. A conservative estimate has therefore been made of residual damage costs. The costs to the climate of road and rail transport in Switzerland are between 0.5 and 2 billion francs. Regardless of the scenario which is chosen, climate costs are ascribed primarily to road transport.

[3] To limit global warming up to 2100 to 2 degrees compared to the pre-industrial period.

Climate costs according to different scenarios, road and rail (in CHF m), 2000

	Road	Rail	Total costs
Short-term perspective: Base value	503	1	504
Short-term perspective: Swiss cost rate for transport	1,006	2	1,008
Long-term perspective: Base value	1,149	2	1,151
Long-term perspective: Upper value	1,580	3	1,583
Maximum estimate (incl. damage costs)	2,026	4	2,030

It should be noted that the estimate attempts to quantify not the climate costs borne by Switzerland, but the contribution to climate change made by transport in Switzerland in the form of pollutant emissions. Since greenhouse gases are exported around the world and cannot be linked directly to local damage, global damage and avoidance costs were used to quantify the external costs of transport.

3.2 Other environmental costs calculated for the first time

In addition to climate costs, the study quantified for the first time costs relating to other aspects of the environment. These are the costs caused by impaired soil quality, lost harvests, forest damage, additional environmental costs in sensitive areas (the Alps), earth tremors, damage to streams, lakes and rivers, additional costs in urban areas as well as upstream and downstream processes. The external costs of transport in these additional areas total 803 million francs, of which 726 million is attributable to road transport and 77 million to the railways.

External costs relating to aspects of the environment not previously covered, urban areas and upstream and downstream processes, road and rail (in CHF m), 2000

	Road	Rail	Total costs
Impaired soil quality	103	1	104
Lost harvests	74	1	74
Forest damage	70	1	70
Additional costs in sensitive areas (the Alps)	29	2	31
Earth tremors	---	20	20
Damage to streams, rivers and lakes	---	---	---
Urban areas	70	18	89
Upstream and downstream processes[4]	380	35	415
Total	726	77	803

4. Summary

[4] Average of base values from both short and long-term perspectives.

- According to the latest calculations, transport causes total external costs in the order of 6.5 billion francs (road transport: 6.05 billion, rail transport: 0.4 billion). These are minimum values. A comprehensive estimate of external transport costs will become available in 2007 with the publication of updated traffic congestion costs.
- Depending on the scenario, climate costs caused by transport are between 0.5 and 2 billion francs. Additional environmental costs combined amount to a little over 800 million francs.

Appendix to the media release entitled "First full cost/benefit analysis of transport in Switzerland"