

## THE TRANSIT AGREEMENT: A PRELIMINARY ASSESSMENT

*In late 1997, the EU Commission performed its scheduled review of the Transit Agreement with Austria. The core of the Agreement, the ecopoints system for trucks, will continue to be effective until the end of 2000, when the European Environment Agency will carry out the next evaluation. At the start of 1998, Switzerland negotiated an accord with the EU on the transit of 40-ton trucks. Nevertheless, a sustainable solution to the problem of trans-Alpine transit is still lacking.*

In the course of its EU membership negotiations, Austria was able to achieve derogations with regard to road freight transit traffic. The "Transit Agreement" concluded back in 1992 was integrated, in the form of protocol no. 9, in the 1994 Treaty of Accession. The EU Council of Transport Ministers was charged with investigating by the end of 1997 whether the measures set out in the Agreement, and in particular the ecopoints system, would stand the test of practice. The basis for this work was a report by the Commission which was to study the effects on the free movement of goods and services, on environmental protection in the interest of the Community in general and on traffic safety. The Commission concluded "that the ecopoints system was a suitable and effective means to reduce pollution by trucks in transit through Austria" (*European Commission, 1998*).

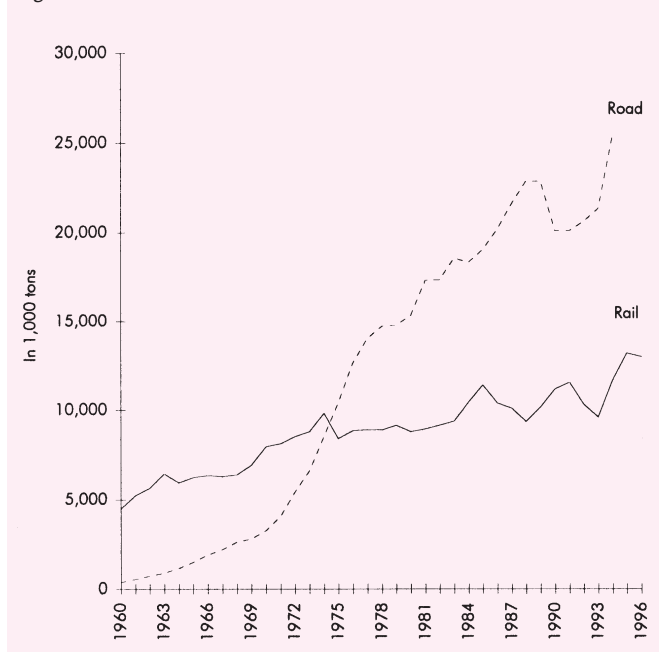
### EFFORTS TO IMPROVE RAIL TRANSPORT AND REDUCE POLLUTION FROM ROAD FREIGHT TRANSIT

In the past decades, the substantial increase of road traffic in the Alpine region has put a serious ecological burden on public health and the environment in general.

Road haulage in particular gathered speed in the early 1970s (Figure 1). By 1975, more goods were moved through Austria on the roads than by rail. The new motorways across the Alps (Inn Valley, Brenner, Tauern, Pyhrn, Gleinalm) provided trucks with a new and significant competitive edge over rail transport. International road haulage contractors were initially able to fully exploit their advantage as the Austrian Federal Government willingly adapted its quotas for cross-border transport requiring official approval to the constantly increasing demand. It was not until the people

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Figure 1: Transit traffic in Austria



living alongside the motorway in the Inn and Wipp valleys began to articulate their protests against the noise and fumes of the trucks that a more restrictive quota policy was introduced. This in turn triggered resistance in the European Community whose policy it was to liberalize cross-border road freight traffic. Negotiations finally produced an "Agreement between the Republic of Austria and the European Economic Community on the transit of goods by road and rail" (Council Decision 92/577/EEC of 27 November 1992). The purpose of the Agreement is to enhance cooperation between the parties in key areas of transport, in particular trans-Alpine traffic. To this end, rail transport and in particular combined transport modes are to be promoted and road traffic regulated to protect public health and the environment<sup>1</sup>.

Measures are targeted at the following objectives:

- develop a rail transit mode that is able to compete with road haulage in terms of quantity, quality and pricing;
- reduce the environmental burden (in terms of NO<sub>x</sub> emission – ecopoints system) imposed by the transit fleet of EU trucks by 60 percent;
- cap the number of annual EU transits at the 1991 level.

In addition to the restrictions specified in the Transit Agreement, transit traffic is affected by various measures that generally apply to road freight traffic in Austria, among them taxes and toll charges as well as special restrictions

<sup>1</sup> Brand – Schäfer (1996) provide a detailed description of the development and solution of the transit problem.

on transport (such as bans on night driving or lower speed limits; cf. box).

*The Transit Agreement imposes limits on the number of transit journeys. Other factors affecting transit development are tolls and bans on night driving.*

When Austria joined the EU, it became necessary to reduce the road traffic contribution, introduced in 1978 for Austrian and foreign trucks alike, in stages from 86,400 ATS for one road train to 16,700 ATS in 1997, in order to comply with the requisite EU directive. At the same time, the toll for the Brenner motorway (some 70 percent of all ecopoints-rated transports are routed across the Brenner) was raised substantially. In 1988, a single truck ticket (from a 100 tickets carnet) cost 250 ATS; in 1996 it was 1,150 ATS during the day (for a noise- and pollution-controlled truck) and 2,300 ATS during the night (10 p.m. to 5 a.m.). A non-Austrian transit carrier running 200 transits a year (100 night trips) across the Brenner consequently had to pay 111,400 ATS in taxes and tolls in 1987, and 377,000 ATS in 1996. In addition to this hefty increase, the ban on night driving for non-noise-controlled trucks imposed in 1980 and lower speed limits similarly made a dent in the competitive position of road haulage across Austria.

In their Transit Agreement, the EU and Austria undertook to increase rail capacities on the Brenner, Tauern, Pyhrn, Schober pass and Danube routes. The national railways need to improve their supply of combined transport modes; national subsidies of rates are permitted in order to make combined rail & road transport competitive vis-à-vis road haulage.

### HAVE THE MEASURES BEEN SUCCESSFUL?

The Commission was positively impressed by the ecopoints system in general. Now a detailed assessment is made as to whether the goals identified in the Transit Agreement have been met and, generally, whether the actual intentions of the Agreement could be realized.

According to the ÖSTAT ecopoints statistics, the number of *ecopoints transit runs* never exceeded the agreed ceilings during 1993 to 1996. A remarkable factor is the low utilization rate of the runs available in 1993 and 1994 (Table 1), which may be due to cyclically reduced trading between Italy and the countries to its north. The fleet used for transit transports averaged considerably *lower NO<sub>x</sub> emission rates* than the ceilings provided for in the Transit Agreement (Table 2). The targets were similarly met in rail

*Taxes and regulations for road haulage in Austria which affect EU transit traffic*

July 1978	Road traffic contribution is introduced (e.g., 12-month fee for a vehicle with a payload of 24 tons: 57,600 ATS)
January 1984	Road traffic contribution is raised (e.g., 12-month fee for a vehicle with a payload of 24 tons: 86,400 ATS)
September 1987	Yearly toll card for trucks on the Brenner motorway is abolished (25,000 ATS)
January 1988	Transit negotiations with EC are commenced
February 1988	Carnet of 100 truck tickets (25,000 ATS) for the Brenner motorway is introduced
December 1988	Ban on night driving (10 p.m. to 5 a.m.) for non-noise-controlled trucks on the Innkreis, Pyhrn, Tauern, Inn Valley, Brenner and Rhine Valley motorways.
November 1990	Price for 100 truck tickets carnet for Brenner motorway is raised to 30,000 ATS
January 1991	Price for 100 truck tickets carnet for Brenner motorway is raised to 45,000 ATS
January 1992	Price for 100 truck tickets carnet for Brenner motorway is raised to 50,000 ATS and issued to noise-controlled trucks only
January 1993	Transit Agreement enters into effect; ecopoints replace bilateral quotas for EU trucks of a total weight in excess of 7.5 tons
January 1995	Accession to the EU; no penalty for excess truck loads of up to 5 percent (total factual weight limit is 40 tons); general ban on night driving for non-noise-controlled trucks; road use fee replaces the road traffic contribution; 48,000 ATS as annual charge for vehicles of or exceeding a maximum total weight of 18 tons
July 1995	100 tickets truck carnet for Brenner motorway is abolished; price for single ticket is raised from 500 ATS to 1,000 ATS
January 1996	Annual road use fee reduced to 32,000 ATS
February 1996	Price for single ticket on the Brenner motorway is raised to 1,150 ATS for noise- and pollution-controlled trucks; to 1,500 ATS for non-noise- and non-pollution-controlled trucks; and to 2,300 ATS for night runs
January 1997	Annual road use fee reduced to 16,700 ATS
End of 1997	Commission Report on the transit situation; the Council decides unanimously to extend the transit regulation
January 1998	Electronic debiting of ecopoints is introduced
Before January 2001	European Environment Agency is charged with assessing the transit regulation; Council will decide on its expiry by qualified majority
End of December 2003	Transit Agreement will expire; the Acquis Communautaire to apply fully

transport. The new Innsbruck loop line made for a significant increase in *rail capacity* on the Brenner route. Generally, sufficient capacity was available for combined transport modes. The “truck on train” scheme was found to be underutilized, and was discontinued on the Munich-Brenner route early in 1996.

The terms of the Transit Agreement thus were fully complied with. Nevertheless, and contrary to the original intentions of the Agreement, road freight transit has risen on the sensitive Inn Valley and Brenner route across the Alps

since 1992, albeit at a slightly lower rate than rail transit (Table 3). Indeed, when we compare road haulage across the Brenner with that across the French and Swiss Alps, we get some remarkable findings. Initial premises in these countries varied considerably: France gradually liberalized international road freight traffic; Switzerland banned night driving and limited the total truck weight to 28 tons; Austria imposed quotas on transit journeys. In spite of what appeared to be the most stringent regulations, road haulage in Switzerland achieved the highest growth rates and market share gains over rail in 1992 to 1996. In Austria

Table 1: Transit journeys and ecopoints consumption

	Transit journeys		
	Performed	Ceiling	Not utilized Percentage shares
1993	1,116,566	1,475,100	24.31
1994	1,244,156	1,475,100	15.66
1995	1,440,714	1,490,900	3.37
1996	1,482,495	1,490,900	0.56
	Ecopoints		
	Consumed	Available	Not utilized Percentage shares
1993	14,502,075	20,486,484	29.21
1994	14,731,275	18,528,731	20.49
1995	15,576,061	16,889,809	7.78
1996	14,306,259	15,311,543	6.57

Source: Austrian Central Statistical Office.

there was hardly any shift in market shares between road and rail. In France, rail transport grew rapidly, especially in 1996, while road haulage stagnated. The causes of these developments will be discussed later.

## WEAKNESSES OF THE ECOPOINTS SYSTEM

### REROUTING OF ROAD FREIGHT TRANSIT TO SENSITIVE ZONES

At its core, the transit problem is one of pollution from the growing truck traffic on the trans-Alpine motorways. While improved engineering has reduced noise and pollutant emission rates in trucks, their sheer volume continued to increase on the transit roads of the sensitive Alpine region, in spite of the ceiling fixed for overall transit traffic. The frequency statistics for the Brenner motorway illustrate the point: after a decline in 1990 caused by the blocking of the Inn Valley motorway (when a bridge collapsed near Kufstein), truck frequency rose markedly until 1995; in 1996 it showed a noticeable dent (Figure 2), the result primarily of a hefty increase in toll charges, only to recover fully in 1997. The increase of truck transit on the routes across the Alps has several causes:

Table 2: Ecopoints debited for each transit journey

	Average achieved	Theoretical <sup>1</sup> COP value	Difference Percent
1993	12.99	13.89	-6.48
1994	11.84	12.56	-5.74
1995	10.81	11.33	-4.57
1996	9.65	10.27	-6.09
1997, 1st quarter	8.95	9.34	-4.15
2nd quarter	8.71	9.34	-6.72
3rd quarter	8.59	9.34	-8.01

Source: Austrian Central Statistical Office, Federal Ministry of Science and Transport. – <sup>1</sup> Available ecopoints divided by the maximum possible number of runs, COP (Conformity of Production) value for NO<sub>x</sub> emission of trucks used (gram per kWh).

Table 3: Trans-Alpine freight transit

	France		Switzerland		Austria	
	Road	Rail	Road	Rail	Road	Rail
Transport volume in million tons						
1986	6.3	1.3	1.1	10.1	16.8	5.2
1992	10.3	2.2	2.2	13.9	16.7	8.0
1996	10.3	4.3	3.5	13.0	20.3	9.2
Year-to-year percentage changes						
1986/1992	+ 8.5	+ 9.2	+12.2	+ 5.5	- 0.1	+ 7.4
1992/1996	± 0.0	+18.2	+12.3	- 1.7	+ 5.0	+ 4.7
1986/1996	+ 5.0	+12.7	+12.3	+ 2.6	+ 1.9	+ 5.9

Source: Dienst für Gesamtverkehrsfragen, Bern. The Alpine arc from Mt. Cenis/Fréjus to Tarvis.

- Liberalization of import and export transport by truck after Austria joined the European Union further accelerated the growth of source-destination freight traffic across the Brenner.
- The ecopoints system by itself does not preclude the growth of transit traffic through sensitive Alpine valleys. The ecopoints are valid for all of Austria's territory so that carriers can spend their quotas on routes that are most profitable to them. Thus, if a transit run between Germany and Italy is more profitable than one between Germany and Hungary, then German and Austrian operators will preferably use the Brenner route.

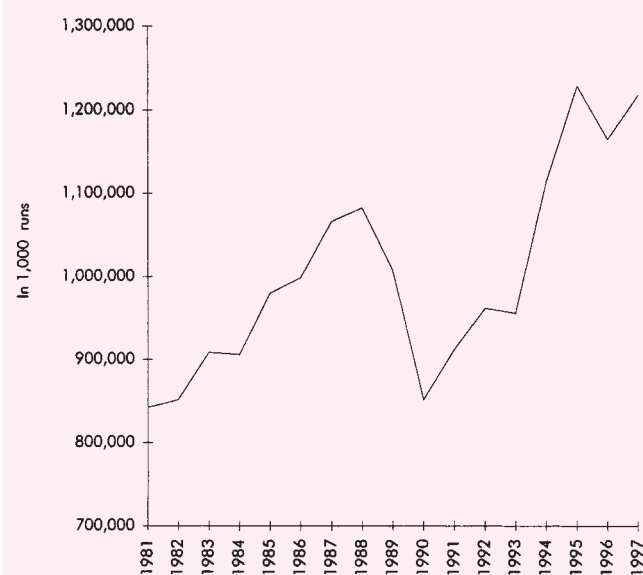
*Truck traffic on the Brenner motorway increased after 1992, and with it the ecological burden imposed on the sensitive Alpine valleys.*

- Operators increasingly use trucks that are not subject to ecopoints (maximum total weight less than 7.5 tons). Currently, transports from Austria's eastern neighbors tend to be handled by minivans because of their countries' small quotas for cross-border transports on heavy trucks.
- European carriers have a large number of ECMT permits for transit runs through Austria at their disposal. These long-term permits are issued by the European Conference of Ministers of Transport and they cover cross-border road haulage including third-country transport. Journeys under ECMT permits are not subject to ecopoints and they are used to overcome bottlenecks in transit transport.

### AVAILABLE EMISSION CONTROL TECHNOLOGY IS UNDERUSED

The ecopoints system is based on the performance-specific NO<sub>x</sub> rate for a given truck that is evaluated by ecopoints.

Figure 2: Truck traffic on the Brenner motorway



A truck on a transit journey requires ecopoints equivalent to its  $\text{NO}_x$  emissions in grams per kWh of the truck performance value as specified in the Conformity of Production (COP value) or type-approval value. The statistics show that, in 1996, Greek trucks needed almost double the number of ecopoints per run than were consumed by trucks from Luxembourg (Table 4). The average ecopoints consumption per journey achieved by the fleet from Luxembourg already in 1996 corresponded to the value required to get the maximum number of transit runs from the quota in 1999. The system thus did not achieve its desired effect of putting the most “environmentally friendly”, technologically advanced trucks on the roads through sensitive regions. Carriers which have sufficient ecopoints at their disposal can continue to deploy obsolete, pollution-emitting trucks for Alpine transports, thereby putting an undue burden on the environment. If the most “environmentally friendly” trucks were used,  $\text{NO}_x$  emissions could be reduced to 40 percent of the 1991 level already today.

#### CONSIDERABLE ADMINISTRATIVE AND MATERIAL INPUT REQUIRED TO HANDLE THE ECOPOINTS SYSTEM

Handling the ecopoints system requires a relatively high administrative input for the Republic of Austria as much as for the other EU member states and the Commission. Carriers need to apply for ecopoints, which are then issued by the authorities in the form of stamp-like vouchers together with an “ecocard” (which is charged to the operator). The ecocard is a multi-part form set, and the first two sheets of

Table 4: Ecopoints consumption by countries

1996

	Runs	Percentage shares in number of runs	Ecopoints	Ecopoints per journey
<i>Origin of trucks</i>				
Italy	570,775	38.50	5,145,608	9.02
Germany	505,781	34.12	4,767,712	9.43
Austria	155,462	10.49	1,398,163	8.99
Netherlands	105,731	7.13	1,075,147	10.17
Greece	46,839	3.16	708,886	15.13
Denmark	40,661	2.74	358,690	8.82
Belgium	23,624	1.59	238,470	10.09
Sweden	7,054	0.48	69,364	9.83
U.K.	6,504	0.44	78,935	12.14
Finland	4,494	0.30	37,211	8.28
France	4,440	0.30	47,544	10.71
Luxembourg	3,840	0.26	31,016	8.08
Spain	1,210	0.08	14,544	12.02
Portugal	442	0.03	5,484	12.41
Ireland	299	0.02	3,641	12.18
Unknown	5,339	0.36	55,844	10.46
Total	1,482,495	100.00	14,036,259	9.47

Source: Austrian Central Statistical Office, Federal Ministry of Science and Transport.

the set must be filled in and handed to the Austrian border authorities upon entering Austria. The third sheet must be carried along and then sent to the relevant national authority. The fourth sheet remains with the carrier. No estimates are available of the total cost accruing to the authorities and operators from this system.

The Commission Regulation EC 1524/96 of 30 July 1996 provides for electronic debiting of ecopoints, which should eliminate the border breaks currently required to handle the administrative side of the ecopoints scheme. To this end, electronic devices need to be fitted in the vehicles which automatically cancel consumed ecopoints (“ecotags”). The responsible authorities in Austria are called upon to install electronic readers for these ecotags at suitable locations. Ecotags are available at designated agencies in Austria and abroad, at 1,150 ATS per unit plus V.A.T. These ecotags are initialized, i.e., charged with the relevant ecopoints quota, at the sales point against a fee. Installation of the electronic system and its roadside infrastructure involved an order volume of ATS 250 million. The system is prepared for future applications such as electronic road pricing. It was scheduled to be put on stream at the start of 1998, but has encountered some start-up problems.

#### QUOTA RENTS FOR ECOPOINTS HOLDERS

The maximum possible number of transits allowed under the ecopoints scheme was virtually exhausted in the past few years (Table 1). In the last months of any such year, truck transport capacities available for transit haulage may well have run short, so that carriers were able to raise their

transport prices and thus to profit from the short supply. From a general economic point of view, it would be advisable to award ecopoints by competitive criteria and thereby ensure efficient use of scarce transport resources. In most countries, ecopoints are awarded in a formalized procedure. The first and foremost beneficiaries are com-

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*Transport capacities for transit occasionally were scarce, and carriers were able to achieve extra profits from ecopoints.*

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panies that have already in the past performed regular transit haulage runs ("grandfather rights"). In this way, the market is dominated by "established" carriers, while the awarding system effectively precludes access for new operators. Having carriers compete for the ecopoints by way of an auction would send a clear pricing signal matching the tight supply, which would ensure that transport capacities were utilized with optimum effect. It would also skim off the extra profits enjoyed by carriers (Puwein, 1994), which would cover the administrative costs and finance measures to reduce pollution.

### FUTURE STEPS UNDER THE TRANSIT AGREEMENT

According to protocol no. 9 on the road, rail and combined transport in Austria (art. 11), the Commission will perform, prior to 1 January 2001, a scientific study, jointly with the European Environment Agency, to determine whether the objective of reducing the environmental burden on a sustained and ecological basis could be achieved. The goal is set out explicitly in par. 2a of protocol no. 9: "The total of NO<sub>x</sub> emissions from heavy goods vehicles crossing Austria in transit shall be reduced by 60 percent in the period between 1 January 1992 and 31 December 2003, according to the Table in Annex 4." (The goal is not clearly defined because it says nothing about the number of transit runs.) Provided that the goal is achieved, the ecopoints system will expire on 1 January 2001. "If the Commission concludes that this objective has not been achieved on a sustainable basis, the Council, acting in accordance with art. 75 of the EC Treaty, may adopt measures, within a Community framework, which ensure equivalent protection of the environment, in particular a 60 percent reduction of pollution. If the Council does not adopt such measures, the transitional period shall be automatically extended for a final period of three years." Accordingly, the ecopoints system will remain in place until the end of 2003 unless the Commission decides, by a qualified majority vote, to terminate it. It will in any case be followed by the full application of the Acquis

Communautaire, so that transit traffic through Austria will be fully liberalized in January 2004 at the latest.

The stipulated reduction of NO<sub>x</sub> emissions to 6.3 grams of NO<sub>x</sub> per kWh has already been implemented by engine manufacturers, and trucks that meet the limit are on the market. On technical grounds, the truck fleet used in transit traffic could therefore achieve the desired 60 percent reduction in total NO<sub>x</sub> emissions over the value of 1 January 1992 within three years. Yet waiving the ceiling on the number of transit journeys would doubtlessly trigger a rise in road freight traffic through Austria if no other measures (such as increasing the taxes and charges) were taken.

An accelerated growth of truck traffic on the trans-Alpine motorways is likely to encounter strong resistance from the population. International agreements on transit traffic which fail to win the consent of those concerned and affected are dubious, not just for election strategy reasons. They would provoke a rise in road blocks which are likely to pose a greater obstruction to trade than any change in the framework governing freight traffic which can be anticipated and prepared for in the long term. The result of the Swiss referendum on the Alps Initiative of 20 February 1994 showed that European operators need to expect further severe restrictions on trans-Alpine road haulage. In spite of the 28-ton weight limit and ban on night driving already in place, the Swiss opted for an almost complete ban on road freight transit through Switzerland as of 2004. Unilateral discrimination of transit traffic, however, is not consistent with the Swiss constitution, and Switzerland has since negotiated new terms for truck transit (cf. below).

### A REVIEW OF TOOLS TO SOLVE THE TRANSIT PROBLEM

The Transit Agreement between Austria and the EU will expire by the end of 2003 at the latest. It would be advisable to prepare in good time for the period afterwards by developing proposals for solutions and promoting an understanding of the transit problem among the other EU member states. In this process, viewpoints forwarded by the EU could be given more consideration. A communication to the Commission (Van den Broek – Matutes, 1993) outlines the EU's view on international road freight traffic in Austria. Principally, the EU strives to safeguard the quality of life of local residents and to protect the environment, yet it also demands unobstructed international trade and equal terms for competition. Solutions need to be compatible with the Acquis Communautaire, which precludes the following options:

- quantitative limits on market access for transit traffic,

Table 5: A review of tools to regulate trans-Alpine transit: do's and don'ts

	Ecology	Economy	Criteria in terms of Administration	Political action	EU law
Ban on night driving for „noise“ trucks	+	–	+	+	+
Night speed limit for trucks	+	–	+	+	+
Strict emission standards and monitoring	+	o	+	+	–
Lower weight limit	–	–	+	o	–
Sectoral transport bans	o	–	–	+	–
<i>Legend</i>					
+	Positive	Positive	Simple	No problem	Compatible
o			No special effect		
–	Negative	Negative	Expensive	Conflict-prone	Incompatible

- separate quantitative limits for bilateral traffic and third-country traffic,
- systematic border controls, and
- a lower weight limit of 38 tons as a global principle (at the membership negotiations, Austria conceded that the weight limit could be exceeded by 5 percent).

*The EU rejects quotas for truck traffic on principle. It prefers to have traffic curbed in sensitive zones by way of road taxes.*

According to the EU, there must not be any discrimination between operators from different member states, including Austria, nor can there be negative discrimination with regard to trucks from third countries. In this communication it was proposed to restrict limits on road freight traffic to sensitive areas (essentially the Alpine valleys where traffic-caused noise and pollution impair virtually the entire habitat and its chief resource, i.e., tourism). Measures should include not just transit traffic but should extend to all road freight traffic (i.e., including domestic, bilateral EU and non-EU traffic).

Below we discuss various measures to limit road freight traffic for their environmental efficiency. The yardstick to judge a measure should be its ability to reduce noise, pollutant emission and congestion caused by truck haulage at minimum cost to the national and international economy. Considering that environmental quality and traffic space are at a premium, it is important to optimize their utilization. Negative effects on economic objectives and the risk of local protests must be minimized. Measures should furthermore be easy to administrate and implement, meet the “polluter-must-pay” principle and comply with the Acquis Communautaire.

## DO'S AND DON'TS

Table 5 summarizes a review of the do's and don'ts, i.e., the orders and prohibitions available to regulate trans-

Alpine transit. Orders are easy to administrate through road police monitoring and usually encounter no political problems in their implementation. A *ban on night driving*, lower *speed limits*, stricter *emission standards* and their monitoring provide for a quick reduction of the environmental burden but are associated with additional costs for the transport industry so that their economic impact is generally negative.

## WEIGHT LIMIT

A subject much discussed at the moment is the *weight limit*. Switzerland has so far insisted on a maximum total truck weight of 28 tons, which in the EU's opinion should be raised to the EU limit of 40 tons. A greater total weight means much greater economies of scale in terms of fixed costs for carriers. For a road train with a dead weight of 14 tons, the maximum permitted payload would be greater by 85 percent if the total weight were raised from 28 tons to 40 tons. The costs of wages, capital and maintenance are not much affected by the payload, and only the fuel cost will rise with the load. The cost of infrastructure (road wear), on the other hand, depends on the total weight and the axles of the vehicle. The destructive forces acting upon the road surface and consequently the marginal cost of road maintenance are greater by a power of three than the axle load (*Small – Winston, 1988*). In order to determine the optimum truck weight limit from a macro-economic point of view, it would be necessary to calculate the “optimum” total weight, taking into account internal costs of capital, labor and fuel and external costs (road construction, road surface repair work, including the cost of attendant congestion, accidents and ecological damage).

From the Swiss example we can make some deductions about the ecological effectiveness of a 28-ton limit: The shortest route linking the important industrial region at the Rhine with Upper Italy is across Switzerland. Due to the weight limit imposed there, 90 percent of the truck transit traffic avoids the country and flows through Austria or France (*Hanreich, 1990*) – in terms of transport volume

just 11.1 percent of the trans-Alpine road freight traffic passed through Switzerland in 1996 (Table 3). Nevertheless, the average traffic volume in 1980 to 1996 rose by 16.6 percent in Switzerland, by 6.1 percent in France and by just 3.3 percent in Austria. The actual ecological burden imposed by transit traffic depends not so much on the tons of freight transported but on the number of trucks passing through. When accounting for lower loads and more frequent empty runs, the Swiss share of trans-Alpine journeys was 26 percent in 1996, or slightly higher than the French share.

### BANS ON THE ROAD TRANSPORT OF SPECIFIED COMMODITIES

According to Austrian transport statistics, many “typical rail freight goods” are actually transported on the road. In 1994, road haulage of food and feedstuff, agricultural and forestry products, mineral resources, construction material and chemical products held the largest share of the total tonnage in road freight transit. Consumer goods and capital goods summarized under “other commodities” were much more likely to be transported by rail than by road (Table 6). Whether goods are transported by rail or by road depends primarily on whether they need to be collected and distributed across a large area or to be transported in an unbroken chain (whenever possible by a complete train). The high cost of reloading goods from truck to train greatly reduces the competitive position of the combined transport mode vis-à-vis exclusive road haulage. The situation is frequently further aggravated by organizational problems at the transshipment points.

Banning bulk goods transports from the road would initially reduce truck transit traffic by more than a third, so that such a measure would at first glance be expected to have a major impact. Such a *ban on the road transport of specified commodities* was to be used in the summer of 1990, when the lowering of a motorway bridge near Kufstein caused considerable congestion. Transportation of PVC sheets, peat, rubber, scrap steel, fertilizers, leather, wood, sawdust, etc., was to be prohibited on the Inn Valley motorway, except when the railway company confirmed to the forwarder that it could not handle the transport. The ordinance, however, never took effect.

Specifying the transport mode for specific commodities by law is rather useless from an ecological point of view, as pollution and noise rates are not affected (except in the case of dangerous goods) by the type of goods transported. These rates depend on the number of runs made and the emissions produced by them. A goods-specific ban will initially prevent certain truck journeys, but carriers will soon strive to utilize the freed capacities by other trans-

Table 6: Transit traffic by NST product categories

1994

	Road		Rail	
	1,000 tons	Percentage shares	1,000 tons	Percentage shares
Agricultural and forestry products	3,758	14.8	1,156	9.9
Food and feedstuff	4,241	16.7	386	3.3
Solid fuels	186	0.7	56	0.5
Mineral oil products	83	0.3	105	0.9
Ores and scrap metal	715	2.8	984	8.4
Metal products	1,684	6.6	1,437	12.3
Mineral resources, construction material	2,885	11.4	392	3.4
Fertilizers	20	0.1	78	0.7
Chemical products	2,888	11.4	862	7.4
Other commodities	8,929	35.2	6,216	53.2
Total	25,389	100.0	11,674	100.0

Source: Austrian Central Statistical Office. NST . . . Nomenclature uniforme de marchandises pour les statistiques des transports.

ports. In this way, “higher-quality” goods (which made up about half of the rail transit transport volume in 1994) will be shifted from rail to road, so that the desired ecological effect will fail to materialize. Having the state regulate the distribution of goods among transport modes also appears problematic from an economic point of view. The play of free competitive forces is more likely to ensure optimum use of scarce transport means than any measure of state planning could achieve. This, however, requires that the state send suitable price signals for using resources that are in short supply (traffic space, environmental goods).

In its transport policy, the EU advocates the principle of free choice of the means of transport.

### MARKET INTERVENTION TO REGULATE TRANS-ALPINE TRANSIT

Capacities made available by the two competing transport modes and their prices should be influenced by market intervention. This tool is generally positive in its ecological and economic effect, but more difficult to administrate and implement at a political level than orders or bans.

### QUOTAS

The problem with *quotas* has already been discussed above. The merit of quotas is that they allow a precise specification of limits. Auctioning off quotas is more efficient economically than their free allocation. The EU, however, roundly rejects all types of quotas.

### TRANSIT CHARGE

In France, the *transit charge*, levied in the form of a relatively high motorway toll, has greatly influenced traffic development. For carriers from the U.K., Belgium or the



Table 7: Review of tools to regulate trans-Alpine transit: market intervention

	Ecology	Economy	Criteria in terms of Administration	Political action	EU law
Quotas for truck journeys					
Free allocation of quotas	+	-	o	+	-
Auction of quotas	+	+	+	o	-
Transit charges	+	+	o	-	+
Improvement of rail offer	o	o	o	+	+
Subsidies for rail rates	o	-	o	o	-
<i>Legend</i>					
+	Positive	Positive	Simple	No problem	Compatible
o			No special effect		
-	Negative	Negative	Expensive	Conflict-prone	Incompatible

Netherlands, the shortest route to Italy is through France and the “Du Fréjus” or “Sous le Mont Blanc” tunnels. Road use taxes in France have exploded in recent years: by the end of 1997, one truck journey from the Belgian to the Italian border cost almost 3,500 ATS. As a conse-

*Taxes and charges have been found to be an effective tool to limit truck traffic, but they need to be constantly re-adjusted to reflect the market situation.*

quence, trans-Alpine transit through France has hardly grown since 1991 in spite of the liberalization, while the increase was substantial in Switzerland (in spite of the weight limit) and noticeable in Austria (in spite of the ecopoints system; Table 3).

The central problem with the transit charge appears to be how to set it at a level that ensures that the maximum tolerable truck transits are not exceeded. The charge depends on the elasticity of demand and supply in terms of changes in the freight rate. Changes in the structure of forwarders and carriers promptly cause shifts in the market equilibrium. It requires constant adjustment of the charge to ensure that transits will be limited to the desired level. Experience has shown that carriers respond to a rise in road use taxes by protests, including road blocks. Rises motivated by environmental concerns, e.g., for night runs on the Brenner motorway, reduced traffic during the “sensitive” night hours by 70 percent (*Executive Office of the Tyrolean Provincial Government, 1997*).

In its negotiations with the EU, Switzerland achieved a solution to its transit problem in late January 1998 which rests on two pillars: Transits of 40-ton trucks are subject to quotas (200,000 transits from 2001, 300,000 transits from 2003), and a charge of 2,772 ATS is levied for each transit. In other words: if the charge fails to limit transits then the quota will take effect.

*Improving the rail system’s offer* has been found to be a necessary but inadequate prerequisite to relieve road

freight traffic. Demand for it will continue to be modest if no suitable measures are taken to counter the growth of road haulage.

From an economic point of view it would be ineffective to increase *subsidies for rail transit rates*. The “truck-on-train” scheme provided an outstanding example of the problems of low rates. Here, more than half of the transport weight is taken up by the vehicle that is transported. On a route like the Brenner pass, which needs to overcome an altitude difference of 800 meters, it appears to be inefficient in terms of energy consumption and environmental concerns to haul along a dead weight of more than 50 percent. Subsidies incidentally are in conflict with the “polluter-must-pay” principle.

## THE NEED FOR SUSTAINABLE SOLUTIONS

The Austrian ecopoints scheme will expire in 2003 at the latest. By that time, solutions should be available for trans-Alpine freight transport which will provide for a sustained improvement of the environmental quality in the transit valleys while not impairing international trade flows. All truck traffic in sensitive Alpine zones should be subject to the most stringent noise and pollution regulations. Noise barriers, speed limits and bans on night driving can also reduce the environmental burden. The EU Commission advocates the employment of market economy tools and rejects quotas for truck transits. Nevertheless, quota auctions could send the price signals demanded by the puristical market economists. The EU has no objections to road taxes but demands that they must reflect true costs. The toll currently charged on the Brenner motorway is too high for the Commission’s taste, and it intends to refer the matter to the European Court of Justice. But what are the “true” costs of road use and its effects on the environment? What value do we put on the deteriorated quality of life of those who live next to transit routes? Which cost do we use to determine the amount of the tax: average cost, marginal cost or opportunity cost? Road taxes should send out a signal indicating a shortage of traffic space or environ-

mental quality. A shortage of traffic space manifests itself in congestion; a shortage of environmental quality leads to declining prices for properties along the roads and protests by the local residents.

We could choose a pragmatic approach and set the tax at a level high enough that the traffic volume will not exceed a "tolerable" level. What is "tolerable" obviously needs to be defined jointly with those concerned and affected. Any regulation that is contrary to their wishes would be problematic not just in view of election strategies. It would constantly provoke road blocks, which obstruct trade flows much more effectively than any change in the framework terms governing freight traffic that can be anticipated and prepared for in the long term. The outcome of the Swiss referendum on the Alpine Initiative should be seen as a warning. Nevertheless, it is also necessary to reduce the burden caused by passenger cars in order to achieve a fundamental improvement in the living conditions of those Alpine valleys that are affected by the transit traffic.

#### *The Transit Agreement: A Preliminary Assessment – Summary*

In late 1997, the EU Commission reviewed its Transit Agreement with Austria, concluding that the ecopoints system was an effective means to reduce pollution caused by trucks driving through Austria. Yet road freight transit continued to grow in the sensitive Alpine valleys, the result of the carriers' practice of rerouting transports to get the most out of their quota of ecopoints and the increased use of ECMT permits. And in spite of the ecopoints scheme, carriers did not always use state-of-the-art "environmentally friendly" trucks. Carriers from Greece, the U.K. and Ireland in particular appeared to have sufficient ecopoints at their disposal to use their obsolete, highly polluting trucks for transalpine transports, putting an undue burden on the environment.

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Before expiry of the Transit Agreement, i.e., by 2003 at the latest, proposals are to be developed to achieve a sustainable solution to the transit problem. Transports through sensitive regions could be subject to road-pricing to reflect the external costs produced by them. All of the truck freight traffic in these zones, including spot, source and destination traffic, is to be governed by limits for noise and pollutant emissions which are to be set as low as possible. In addition, noise barriers, speed limits and a ban on night driving are to reduce the environmental burden. Nevertheless efforts need to be made to reduce pollution from passenger cars as well in order to achieve a fundamental improvement in the living conditions of the Alpine valleys suffering from transit traffic.