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**Deliverable 6:**

### **Trans-Alpine Crossing - Pricing & Financing**

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Trans-Alpine Transport Infrastructure")

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## Introduction

Established in 2001 with the support of the Fifth Framework Programme of the European Commission, ALP-NET looks into the challenges and opportunities facing policy and research on trans-Alpine transport. ALP-NET is a network of experts and users, set up to synthesise, concert and co-ordinate ongoing work and to deliberate open questions. Among other activities, ALP-NET is organising a series of seven workshops providing a platform for the exchange of ideas among policy makers, scientists, experts and representatives of NGOs.

The **4th ALP-NET workshop on pricing and financing** of Alpine transport infrastructure took place on **12/13. September 2002 in Berne/Switzerland** and was attended by about 60 participants.<sup>1</sup> The workshop comprised four sessions addressing the following issues:

- Pricing schemes for Alpine transport: Theory, application, impacts and acceptability
- Use of revenue; cross-financing and other alternatives
- Implementation issues and legal framework
- Recommendations to policy makers

**Deliverable 6 contains abstracts of all papers presented at the 4th ALP-NET workshop as well as the proceedings of the discussions that followed the presentations. The policy recommendations of session 4 include important discussion points raised in other sessions as well, which makes chapter 4 a concise summary of the opinions expressed at the workshop. The papers presented at the workshop are contained in Annex 1 of this deliverable.**

All papers presented at the workshop can also be downloaded from our project website.

**[www.alp-net.org](http://www.alp-net.org)**

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<sup>1</sup> Sessions were chaired by Anna Panagopoulou (European Commission, DG TREN), José Viegas (TIS), Felix Walter (Ecoplan), while the following rapporteurs contributed to this document: Claus Doll (IWW), Florian Gubler (Ecoplan), André da Palma (adpC), Michael Schmidt (ICCR).

# 1 Session 1: Pricing Schemes for Alpine Transport: Theory, application, impacts and acceptability

Chair: Felix Walter, Ecoplan

1.1	Theoretical view on pricing. Latest developments in research: Theory, application and impacts	Stefan Suter, Ecoplan
1.2	Comment from a scientific point of view	Werner Rothengatter, IWW Karlsruhe
1.3	Comment: The policy perspective on pricing	Christian Nagel, ASFINAG
1.4	Comment: Pricing in practise: Impacts of the Swiss Heavy Vehicle Tax (MRHVT) on road and rail transport	Ueli Balmer, Swiss Federal Office for Spatial Development
1.5	Comment: The problem of acceptability of Pricing Schemes. How to overcome resistance	José Viegas, Tis.pt
1.6	Discussion	

## 1.1 Theoretical view on pricing. Latest developments in research: Theory, application and impacts

In his keynote presentation, Stefan Suter of Ecoplan gave an overview over the different approaches to transport pricing and the impacts of social marginal cost pricing as estimated by various selected studies. Social Marginal Cost Pricing (SMCP) is based in the micro-economic pricing principle of short run marginal cost pricing. In economic theory, SMCP leads to an efficient use of the existing transport infrastructure. However, the calculation of charges requires a comprehensive knowledge of all marginal cost information, including producer costs, user costs and external costs. In order to realise the potential welfare gains, a strongly differentiated pricing strategy according to location, time, vehicle category, etc. is needed. Furthermore, it is unclear whether SMCP will generate enough revenues to cover the total costs of the transport sector as a whole. Finally, the current organisational and institutional structures do not appear to be very suitable for the implementation of SMCP. Thus in practical terms, this pricing approach may be difficult to implement. Alternative approaches are currently being developed which are centred round the notion of full cost recovery and should be understood as a "second best" solution of the SMCP approach.

In reality, pure SMCP approaches are largely ignored in the implementation of transport pricing schemes in Europe. Even the European Commission, which stressed SMCP as the first choice for a common European pricing approach in its 1998 White Paper, has gradually moved away from this principle in recent years.

In the past years, a number of different studies have tried to assess the possible impacts of the implementation of various pricing approaches. Overall, the results show large differences, especially for the calculation of the external effects. The welfare gains of pricing schemes seem to be limited; in the case of Switzerland only in a small number of sectors the impact on the gross production value exceeds, +/-1%.

## 1.2 Comment from a scientific point of view

In his comment on the keynote paper, Werner Rothengatter of the University of Karlsruhe analysed the historical development of the principle of SMCP. The popularity of the marginal cost approach follows a cycle of 30 years. Peaks occurred in the late thirties, sixties and nineties. The idea is convincing in theory: Taking a set of assumptions of neo-classical theory, setting prices at marginal costs leads to an optimal use of capacity. Every cycle started with this insight and turned later on to the questions whether the set of assumptions used is valid to describe the real world. At the moment, the discussion has once again reached the insight that in the transport sector the departures from this principle may be more important than the principle itself. In realistic approaches, a "second best" variety of the marginal cost principle will be a natural part of the optimal solution. In this case, small mark ups should be allowed but it should only be called SMCP as long as this principle is still the predominant component of the price. An SMCP system allowing for mark-ups should always be compared with other "second-best" schemes. For instance, it can be shown that an SMCP with mark-ups for fulfilling a budget constraint is pareto-inferior to a multi-part tariff system (if the latter is optimally designed).

Public/private partnerships for the funding of transport infrastructure projects are only realistic if the private investors enjoy a certain degree of freedom for designing, operating and pricing the facilities. If pricing was automatically carried out on an SMCP base, an important part of private management would be ruled out.

Optimising welfare is one of the main arguments for SMCP but a well-known rule of decision theory says that it is impossible to achieve a set of different objectives optimally by one instrument. This would suggest to derive the best instruments depending on the lever points of behaviour and to differentiate pricing measures at least into infrastructure charging and environmental taxation.

The European Commission must clearly state quantified objectives that should be achieved through pricing measures. On this basis, it would be possible to derive an optimal set of instruments.

## 1.3 Comment: The policy perspective on pricing

Christian Nagel of the Austrian highway construction company (ASFINAG) gave an overview of the developments surrounding the introduction of the new Austrian road pricing system in 2004. At the moment, tolls are charged only for five sections with tunnels and the Brenner Motorway. Starting from 1992, several steps were taken towards a more universal and kilometre-related pricing system for heavy goods vehicles. After a decision in the year 2000 to stop the implementation of the planned semi-open dual truck toll system, a commitment for the implementation of a fully electronic system was made. The time from the preparation of a tender until the expected opening of the new system is more than three years. The Austrian example shows that a political consensus is an absolute prerequisite for starting the necessary process of legislative change that is required for the introduction of a new road pricing

system. The political consensus must include a clear definition of the network to be charged, the vehicle categories, the enforcement authorities, and a methodology for the calculation of the toll rate.

The new Austrian charging system will distinguish between three types of trucks; two axle trucks will be charged 13 cents per vehicle kilometre, three axle trucks 18 cents and trucks with four or more axles 27 cents. The system applies for all trucks above 3.5 tons and will be implemented only on certain parts of the Austrian road network, including all motorways. It will be operated by Autostrade S.p.A /Europass which is already operating a similar system in Italy. The On-Board-Units will be cheap (€ 5) and will be distributed via 210 outlets in Austria and the neighbouring countries.

#### **1.4 Comment: Pricing in practise: Impacts of the Swiss Heavy Vehicle Tax (MRHVT) on road and rail transport**

Ueli Balmer of the Swiss Office for Spatial Development spoke about the Swiss experience with the implementation of the Mileage Related Heave Vehicle Tax (MRHVT). It covers all vehicles above 3.5 tons and the entire Swiss road network. The MRHVT was introduced in 2001 and at the beginning it was on average five times higher than the flat rate that was in place before. With the final step of the introduction of the MRHVT, at the latest in 2008, it will be eight times higher than before 2001. But at that time, the restrictions on the use of 40t trucks will be eliminated.

The first effect that was observed after the introduction of the system in 2001 was a significant decrease in the number of road freight vehicles (approx. -5 to -10%). The effect on rail transport is not yet clear but price does not seem to be the major problem; it is rather other barriers, like interoperability, that determine the development of rail transport. An example illustrates the complexity of the effects of the MRHVT on the transport system: The share of rail for the transport of chemical goods has risen dramatically for internal Swiss transports (46%), substantially for inner European transports (25%) but only slightly for inter-continental transport (6%).

Overall, the MRHVT seems to have the desired effects on the transport system but it should be seen only as one among a number of instruments.

#### **1.5 Comment: The problem of acceptability of Pricing Schemes. How to overcome resistance**

José Viegas of TIS.pt spoke about the acceptance of road pricing schemes. There is ample consensus that the transport system is not working well; accidents, congestion and nuisance upon others being the most visible reasons for protest. This group of negative aspects must certainly be expanded to include larger scale environmental impacts, even if those are less immediately felt. While there is a consensus on the existence and undesirability of these effects, several options exist to tackle and reduce them, one of them being centred on the ap-

plication of “better” pricing principles to transport goods (access to infrastructure and consumption of services). How can the transport system be improved, using price changes as one of the instruments, in such a way that these changes are understood and accepted by the public? The main argument goes in the direction that effectiveness (things work well) is much easier to understand and pursue than efficiency, and we must try to sell the changes with the promise of improvements of quality rather than with gains of efficiency.

In many different ways, people are ready to pay to receive better quality, and there is no reason why in transport this should not be so, except that often there is delivery of reasonable quality without direct payment, i.e. government supply is based on taxes and not on direct charges on the user. The main conclusions are:

- The main justification for price changes should be quality.
- Prices are a tool to be used in conjunction with engineering (supply) and regulation (other forms of demand management).
- Careful consideration should be given to positive discriminations in the name of vertical and longitudinal equity.
- The introduction of payments should be linked to contracts for improvements to be financed by revenues.
- Stakeholder participation is vital, in particular in the phase of recognition that charges are needed to manage demand and improve quality (normally, in parallel with other measures) in the design of pricing schemes (helps check against bias and loopholes)
- The collection and administration of revenues has to be conducted in a transparent and accountable manner.

## 1.6 Discussion

1. *The role of economic theory (particularly Social Marginal Cost Pricing) for the implementation of road pricing in Europe* – Pure Social Marginal Cost Pricing (SMCP) only works as an economic theory but does not live up to challenges of a complex real world pricing system. This does not mean, however, that economic theory has nothing to contribute to real world pricing systems. Other approaches than SMCP may be useful for designing optimal pricing schemes, as long as there are clearly defined political objectives and clearly defined lever points (such as technology and regulation) to assist in the implementation. Economic assessment should also be used to analyse the consequences of various alternative approaches (Rothengatter, Suter).
2. *The calculation of external costs* - The precise calculation of external costs will only play a limited role in the implementation of pricing schemes. In the Swiss case, external costs are still an important consideration but on the whole the system mostly responds to politically defined objectives (Balmer). Rather than dealing with externalities only by pricing variable factors, like the kilometres travelled, pricing should also encompass fixed factors like the technology used. In addition, there should be specific commitments like common pollution standards and targets for CO<sub>2</sub> reduction (Rothengatter). Charging ex-

ternal costs in a harmonised way across Europe will lead to lower transport costs in peripheral regions (Zauner).

3. *The planned Austrian heavy goods vehicle pricing system* – The new system to be introduced in 2003 in Austria only calculates the costs for the construction and maintenance of roads. Social costs are not included because this is not allowed under current EU legislation. This is expected to change with the new framework directive (Nagl, Zauner). 85% of the revenues of the system will go to the ASFINAG, 15% will stay with the operator of the system, Europass. There are currently no plans to extend the system to also cover passenger cars. This is expected not before 10 year's time and only in coordination with Germany introducing a similar measure (Nagl).
4. *Cost recovery from road pricing* – On the question of cost recovery there was some disagreement among the participants; while some argued that an agreement on cost recovery targets was needed across European countries (Rothengatter) others argued that peripheral regions could never achieve the same magnitude of cost recovery as densely populated areas in the centre of Europe (Viegas).
5. *Harmonisation of pricing systems* – Different country specific situations may lead to different price levels. The main issue is to have a non-discriminatory system (Rothengatter). In order to ensure non-discrimination, the EU Member States should agree on a common methodology for the calculation of prices. However, the argument of harmonisation (methodology and technical) should not be used to delay the introduction road pricing systems. All necessary information is already available to proceed with the implementation phase now (Balmer, Viegas). Furthermore it is quite clear that high charges for the use of roads in the Alpine areas alone will not have a significant impact on transport flows; crucial is what happens to prices outside the Alpine areas, from Northern Germany, the Benelux and Scandinavia all the way to Italy and France. These pricing strategies across the countries have to be part of a larger strategic effort (Suter).
6. *The Ecopoint system* – As road pricing in the Alpine areas alone is not expected to significantly change the transport flows on the Alpine crossings, additional measures could be necessary to improve the situation (Giorgi). In this respect there were arguments in favour of combining an Ecopoint system with a future pricing system (Liechti) while others argued that pricing and the Ecopoint system are based on two different philosophies and should not be combined (Suter).
7. *The quality of railway services* – Improving the quality of railway services will be a crucial complement to any new road pricing system (Benninger). Part of this improvement could be brought about by allowing private intermodal terminals (Viegas).

## 2 Session 2: Use of Revenue; Cross-financing and other alternatives

Chair: José Viegas, TIS.pt

2.1	Pros and Cons of Cross-financing from a scientific point of view	Werner Rothengatter, IWW
2.2	FinÖV. A practical example of cross-financing in Switzerland	Erwin Wieland, Swiss Federal Office for Transport
2.3	Some thoughts towards cross-financing on the Brenner Corridor	Johann Herdina, Brenner Base Tunnel Company
2.4	Panel discussion (incl. open discussion from the floor): The Use of Revenues from Road Pricing and the Possibilities for Cross-financing	<ul style="list-style-type: none"> <li>– Jens Hügél, IRU</li> <li>– Ansgar Kauf, IRF</li> <li>– Carl-Henrik Lundstrom, CER</li> <li>– Markus Liechti, T&amp;E</li> </ul>

### 2.1 Pros and Cons of Cross-financing from a scientific point of view

Werner Rothengatter of the University of Karlsruhe spoke about the pros and cons of cross-financing from a scientific point of view. The standard neoclassical theoretical approach to marginal cost pricing and investment decisions leads to counterproductive schemes because the approach is oversimplified. The neoclassical framework needs to be either extended, or replaced. Several limitations explain the difficulties in using neo classical theory for pricing infrastructure and for computing optimal financing schemes. He argues that the pricing schemes should be set dynamically, that network externalities should be considered, and that institutions should be described in a realistic manner. In particular, it cannot be assumed that policy makers seek to maximize social welfare. The implications of these statements are examined for the following three issues:

#### Cross-financing

In a sense, cross-financing is already a reality since heavy vehicles pay for the private cars. Often the use of revenue is subject to a trade-off between equity and efficiency. However, the study of this trade-off is oversimplified for the reasons just mentioned (dynamic aspects, incentives, etc.). As a result, the case for cross-financing is weak. Moreover, it was argued that cross-financing can lead to unfair competition and mistrust in the overall cross-financing scheme, and it can introduce serious distortions in the economy.

#### Earmarking

Standard neoclassical economics teaches us that revenues collected from taxes, tolls or other instruments should be allocated efficiently, that is to the sector where the marginal social benefit is the largest. This contrasts with the philosophy behind hypothecation or ear-

marking that revenues should be spent in the sector where they are collected. This philosophy is based on three observations:

- States are not benevolent;
- If revenues go to another sector, there is a lack of transparency;
- Cross-financing may be politically unacceptable.

To achieve transparency, the roles of the private management and the State need to be well defined and separate. In other words, a new institutional framework is necessary.

## **Pricing**

The concept of marginal cost pricing which is at the basis of neoclassical economics is hardly suited for practical application since many constraints exist such as: imperfect information, implementation costs (which could limit the scope of tolls), lack of correct incentives, and difficulty to correctly estimate demand. "In this sense SMCP (Social Marginal Cost Pricing) looks like the magic animal which is called in German "eierlegende WollmilchSau" i.e. one single animal which can produce eggs, wool, milk and pork.

## **2.2 FinÖV. A practical example of cross-financing in Switzerland**

Erwin Wieland of the Swiss Federal Office of Transport presented the Swiss FinöV scheme as a practical example of cross-financing in Switzerland. The Swiss "Alptransit Project" uses a variety of methods for financing railway modernization and expansion over the long term. Four major projects with a total value of € 21 billion are involved. The fund is replenished partly through earmarked revenues (mainly from a flat tax on heavy vehicles, a mileage related heavy vehicle tax, and VAT), and partly through fund raising on the capital market. The creation of the fund was made possible by a nation-wide consensus (Swiss referendum). Cross-subsidization per se did not pose a major road block since the Swiss citizens agreed to give priority to rail and therefore to accept cross-financing between road and rail.

The success of the fund relies on the political acceptability through a referendum (and therefore support by the people), especially concerning the introduction of a few new taxes. Earmarking and transparency also contribute to acceptability. The budget authority remains in the hands of the parliament.

The success of this approach is due to a global transport policy that involved rail and road, optimal implementation path with a balance between short term and long term cost and benefit. More precisely, the prerequisites for success were:

- Temporary funds for clearly defined projects with their own financing source
- Balanced and harmonious growth of the programme
- Transparent flow of financial resources and rules
- Flexibility in the use of cross-subsidies.

### 2.3 Some thoughts towards cross-financing on the Brenner Corridor

Johann Herdina of the Brenner Base Tunnel Company spoke about cross-financing on the Brenner Corridor. This project covers the TEN-Axis project from Berlin to Naples. The Brenner Base Tunnel Company (BBT) was created as a European Economic Interest Group (EEIG; 50% Italian and 50% Austrian). The project aims at constructing a railway tunnel between Innsbruck (Austria) and Fortezza (Italy). This project is justified by an expected doubling of freight transport over the next twenty years. The expected cost of the project is € 4.5 billion. The financing of the project could involve cross-financing (a mark-up on road tolls for heavy goods vehicles and private cars), as well as own capital, EU subsidies (20%) and concession charges (for 35 years). Construction is expected to take 15 years and the projects finances could be balanced by 2044.

The complexity lies in the granting of concessions. Of the different concession models (pure state, private pre-financing model, state model, state construction models with external operating company, public private model with external operating company, motorway models with construction and operation company and pure private model), a private pre-financing model/state model with separate construction and operating companies seems to be the favourite now. It is suggested that a State Treaty should regulate the fundamental aspects of planning, construction, operation and financing.

Cross-financing the tunnel through road charges on the motorway along the Brenner axis will increase the cost for crossing the Alps from € 135 to 168. Mr. Herdina emphasised that this is substantially lower than the charges for the Gottardo and the Frujus tunnels.

This public private model represents a pure PPP (public-private partnership model) allowing the extensive spreading of risks and the possibility of having different investors in the construction and in the operating phases.

### 2.4 Panel discussion: The Use of Revenues from Road Pricing and the Possibilities for Cross-financing

#### Jens Hügel (IRU)

Jens Hügel of the International Road Union (IRU) argued that pricing should be non discriminatory (equal treatment), and should not involve cross-subsidies between different transport modes. Supplying cross-subsidies to competitors is unacceptable for road transport. In addition, investing in rail and water infrastructure would not change the modal split as has been demonstrated on the Alpine crossings, where despite overcapacity on the rail system and some congestion of the private road network the market share for rail has decreased by one percent a year.

Cross-subsidies are not allowed according to the Amsterdam treaty and, furthermore, cannot be used for general budget purposes.

The IRU proposes the use of revenues for sustainable transport solutions following the three “I” strategy of the IRU: Innovation, Incentives and Infrastructure. These solutions include environmental friendly roads, less polluting engines, training of drivers and operators, and inter-modal terminals.

### **Ansgar Kauf (IRF)**

Ansgar Kauf of the International Road Federation (IRF) stated that the objective of the IRF is to develop sustainable roads; not more, but better road systems. Cross-subsidies should not interfere with market forces. Therefore, the IRF has always been against governments building superfluous, political roads that are not justified by user demand or to a limited extent by macro-economic reasons. One striking example for this malpractice are the public motorway concessionaires in France, cross-subsidizing over-dimensioned or superfluous projects that have nothing to do with a public service. Therefore, neither road nor rail should be cross-subsidized. Mr. Kauf also remarked that at present, more than 66% of user charges are “siphoned off” from the private transportation systems, which seems excessive and clearly proves that roads pay more than their own cost. In general, cross-subsidies should be an exception.

Cross-financing induces economic losses and fails to induce a significant modal shift. The IRF would clearly welcome that rail attracts more users and relieves congested roads. But this will only be the case if there is an attractive offer to users, made possible by an efficient private sector management philosophy, cross-subsidisation provides the wrong incentives. Punitive Road Pricing systems are only artificial charges put on top of road taxes. They do not help to combat externalities as long as they only serve as a pretext for raising money, which is not being invested in relevant measures in the road sector (road safety, noise barriers, less polluting engines). Partly this is the case because the appropriate prices are difficult to compute. Thinking about roads within an integrated transport approach, the IRF also considers measures intended to make rail more efficient, it should not continue to be a soviet-style subsidized state enterprise, but an effective competitor to roads.

### **Carl-Henrik Lundstrom (CER)**

Carl-Henrik Lundstrom of the Community of European Railways (CER) stressed that more than one set of instruments must be applied to achieve the objectives of transport policy. Among the most important instruments are pricing, charging and financing mechanisms. Prices can provide the right incentives and convey signals. Pricing and charging are elements of a necessary internalisation of external costs. Optimal financing mechanisms may or may not involve cross-financing. This is a political question, but the concept is legitimate and valuable, and should be applied where appropriate. Optimisation should not be limited to individual transport modes in isolation, but to the total system. The pricing and regulatory tools should be used to internalise external costs. According to Mr. Lundstrom, the external costs of the transport sector are both unacceptable in size and unequally distributed across the individual modes, causing severe distortions between modes.

The main message is that the optimisation of the transport system has to be performed across all modes, it should use all suitable instruments (including cross-financing) and reduce external costs according to the marginal cost principle or other appropriate schemes. Of course, it is not possible (yet, if ever) to find a truly optimal solution, but it is imprudent to accept further delays given the urgent need to internalise external costs and to attain a better balance between modes: Scientific accuracy is desirable but not a prerequisite to start implementing solutions: “The best is the enemy of the good”.

### **Markus Liechti (T&E)**

Markus Liechti of Transport and Environment (T&E) presented the position of his organisation: social marginal cost pricing should succeed in internalising external costs while respecting fairness and adhering to the user/polluter pays principle. The sources of external costs are well documented: air pollution, accidents, noise, congestion and road maintenance. Cost benefit analysis should be comprehensive (across all modes and economic sectors). Some difficulties arise due to various imperfections (for example, imperfect competition).

The issue of cross-subsidies is subtler. It is inefficient from a pure economic point of view since it restricts the flexibility in the use of revenues, but sometimes it is necessary for acceptability reasons. Ideally, revenues should be allocated to sectors where they are most valuable. This could only be decided by elected representatives of the citizens, i.e. Members of Parliament who also decide on the pricing scheme. Both decisions should be taken individually bearing in mind the objectives of sustainable transport in both cases (keeping in mind, also, the aim of sustainable transport, including issues that do not have a well defined money value). Cross-financing generally increases the flexibility and the value of the money spent and thus the efficiency. However, in any case revenues should only be used for clearly defined projects that have been assessed with regard to their economic, social and environmental impacts.

The use of pricing instruments is necessary, but the funds should not be earmarked to the transport sector. As the pricing schemes should reflect already existing costs (which are paid by public or private budgets but not by the users), there is a need to compensate the citizens. Since increases in transport price are a form of taxation, it may be wise to decrease other taxes such as labour taxes. The setting of prices (and regulations) should not be done at the level of single links or modes, but rather for the transport system and sensitive areas as a whole.

### **Open discussion with involvement of participants**

1. *The question of external benefits* – Ansgar Kauf and Jens Hügel claimed that there are considerable positive externalities that are not internalised and ignored by theoretical economic modelling. As an example, the World Bank often grants top priority to transport investments in developing countries since it is known that this is an effective way to fight poverty. Those external benefits should be taken into account when considering external cost and when conducting cost benefit analysis. However, negative externalities caused

by road systems should be internalised in such a way that the user pays for relevant measures for reducing them. The existence of significant external benefits in the road transport sector was strongly disputed by a number of participants (Rothengatter, Perkins, Liechti). Most of the so called external benefits are in fact internal, i.e. the reason for using and paying for transport services. Those who send goods or buy goods are benefiting from transport and therefore paying for the transport service. There are no third parties involved that also benefit. It is important to distinguish between "external benefits" and "indirect benefits". The latter do exist but they are by no means "external".

2. *The role of public attitudes and the image of transport modes* - Public attitudes towards cross-financing are sensitive to the image of given modes. For example, trucks and coaches have a bad image. When a bus accident occurs that results in injuries or fatalities, the perception of bus transport may become worse even though it is safer than car transport. The response of the population could also be a function of the image of the transport modes (Hügel). We are facing a multiple objective game with multiple instruments. It has been shown that users are more willing to pay if they are offered a viable and attractive alternative. Rail has also a bad image (not only the truck) of not delivering the goods in due time. Cross-subsidization is acceptable if it is improving the system (Viegas).
3. *The role and problems of rail transport* - There is a need to shift freight transport from road to rail. This cannot be accomplished simply by transferring trucks to the train; it requires a re-organization of the whole system of rail freight transport. The process of re-organization should be undertaken by the market, with the goal of meeting the requirements of shippers. The missing element is an intermediary agent between demand for transport of goods and the shippers (Stone). The rail should organize intermodal transport, and they are not doing this job correctly. They should have a more direct interest in the quality of the service provided (Viegas). Rail transportation, at least for freight, is much better organized in the US (in the US 38% of freight uses rail). Perhaps incentives from the EU, cross border harmonization, and other push and pull measures could be more successful than pricing measures (Kauf). We have not done enough for rail freight transportation in the past, especially for cross-border transportation. The problems are often more of a commercial and operational nature than physical. The challenge for the railways is to find the right ventures and attain the right quality/cost level. Nobody will argue that trucks are not needed in the transport system. The problem is how, when and where they are used. There are no acquired rights to carry out inappropriate transport. The problem is how to use the most efficient mode, taking into account both the commercial and the societal aspects. The same question arises for cross-financing (Lundstrom).
4. *Traffic increases on trans-Alpine corridors* - Current figures show that traffics is increasing dramatically in some corridors; this can be seen for example in the figures for the recent Brenner traffic studies. The situation should always be examined for the different "sensitive" points, i.e. the corridors, as a whole. There are choices to make. Either the legislator should ban traffic when congestion becomes severe, or new infrastructure

should be constructed and the necessary cross-subsidies provided. This is a political choice that cannot be avoided (Herdina).

5. *Cross-subsidies* - There was not much public money available in Switzerland before the major rail projects were planned. There were two distinct decisions, one on a distance depending charge and one on rail tunnels through the Alps. These decisions were taken in order to achieve the objective to transfer trans-alpine freight transport from road to rail. Cross-subsidies should always be based on such political decisions and an integrated impact assessment (Liechti). Moreover, when a project is well documented, some private money may also be available. There is a need, however, for the investors to receive sufficient guarantees (such as loan guarantees from government).

### 3 Session 3: Implementation Issues and Legal Framework

Chair: Anna Panagopoulou, DG TREN

3.1	Latest Developments in Road Pricing Policies (Western Europe)	Stephen Perkins, ECMT
3.2	Latest Developments in Road Pricing Policies (Accession Countries)	Stane Bozicnik, University of Maribor
3.3	Need and possible strategies for harmonisation of national pricing strategies	Markus Maibach, Infracore
3.4	Presentation of the methodology for the New Framework Directive on Infrastructure Charging	Christophe Deblanc, European Commission, DG TREN
3.5	The future of the Austrian Ecopoint system: View of the European Commission	Günther Ettl, European Commission
3.6	Discussion	

#### 3.1 Latest Developments in Road Pricing Policies (Western Europe)

Stephen Perkins of the European Conference of Ministers of Transport (ECMT) spoke about the recent developments in road pricing policies in Western Europe. The presentation gave an overview of the taxes and charges applicable to road haulage in a selection of European countries. The Swiss mileage-related heavy vehicle tax (MRHVT) and the truck km charges planned in Germany, Austria and the UK, and under consideration for the other Eurovignette zone countries Austria and the Czech Republic, are significant steps towards creating systems of road transport charges that better reflect the social marginal costs of infrastructure use. They fit well with the goals of the European Commission, to be formalised in the Framework Pricing Directive, and with the ECMT Resolution on Charges and Taxes in Transport.

Although the revenues associated with the Swiss and German truck km charges are small compared with the overall social marginal costs of road use, they are significant in relation to the costs that can be allocated to trucks, to the extent that cost allocation methods have been established. For transit through Switzerland of a 40t truck, the Swiss MRHVT equates roughly with the tax payable on the fuel used for the trip.

The new truck km charges have the advantage of being a variable charge that is differentiated according to environmental performance (at least to design standards) of vehicles. Fuel taxes, the main type of variable charge available, can not be differentiated in this way.

The German and UK systems, as currently conceived, have the advantage of incorporating satellite tracking technology which opens the way for charges to be differentiated by time period and location, making spatially differentiated charging for externalities possible across the road network.

The km charges could be developed to partially substitute for fuel taxes, enabling charges to be linked to costs (generally lower in rural areas and higher in urban areas) without the loss

of revenues or erosion of the variable part of overall transport charges that fuel tax cuts on their own entail.

Spatially and temporally differentiated km charges would also be an ideal approach to congestion charging. The introduction of the German and UK truck km charges will bring the possibility of managing congestion through charging across the whole road network much closer.

Experience with congestion tolling on motorways demonstrates that in the short term large impacts on congestion peaks can be achieved through peak spreading. Where parallel routes are created, differentiated tolls can also have a strong effect in moving traffic to the less congested route. However, none of the modulated motorway tolls in place, or planned with certainty, test the impact of congestion pricing on chronically congested roads where alternative routes are not available. The potential impact of such tolls on long term welfare therefore remains a subject for modelling rather than observation.

Experience with cordon pricing is also for the moment too limited to be conclusive — the area inside the Rome cordon is too small to have a major impact on traffic across the whole city. The London cordon pricing system to begin operation in February 2003 will prove much more instructive.

### **3.2 Latest Developments in Road Pricing Policies (Accession Countries)**

Stane Bozicnik of the University of Maribor spoke about the latest developments in road pricing policies in the Accession Countries. The presentation contained a detailed description of the situation in eleven of the twelve Accession Countries (excl. Malta). Generally speaking, the two major sources of revenues from the road transport sector are the fuel tax and the vehicle tax. In the Accession Countries, the fuel tax amounts to approximately 60-80% of the total revenues from road transport. Even though fuel taxes have been rising in recent years they are on average still only two thirds of those in the current EU Member States. Kilometre related road charges and tolls do not play an important role now in the Accession Countries.

The harmonisation process that is currently taking place shows distinctive differences for each of the Accession Countries. Overall, it can be concluded that:

- In general, a good progress towards the harmonisation of the road transport related charges has been made by the candidate countries in recent years.
- Road transport related fiscal harmonisation seems to be one of the most difficult dossiers to be tackled by public authorities and the industry in the years to come.
- Recent PHARE studies have shown that in the majority of the candidate countries road transport operators largely cover their infrastructure costs, while a very small proportion of the tax-revenue collected from road transport operators is spent on the actual improvements and on the extension of the road network.
- The income generated by the so-called transit taxes applied by many of the candidate countries is really marginal for their budgets, while these taxes constitute a major obstacle

for transit by non-resident operators, thus hampering the achievement of an enlarged internal European market.

- The strategy and accompanying technical measures, adopted in 1999 by the IRU members to facilitate a smooth enlargement process in the field of road transport is still being pursued.
- The planned EU changes in the field of infrastructure charging (in 2002) and in the field of commercial road transport fuel taxation (proposal expected in 2003) may create a certain level of confusion in the candidate countries because they have tailored their strategies and schedules according to the existing EU policy measures.

### 3.3 Need and possible strategies for harmonisation of national pricing strategies

Markus Maibach of INFRAS spoke about the needs and possibilities for harmonisation of national pricing strategies. Alpine transport policy is an important key factor for the development of more sophisticated and coherent pricing instruments, since the political pressure associated with the problem is more severe than elsewhere. It is also clear that the Alpine core countries have similar aims and strategies with respect to pricing. This has led to a significant cohesion processes in the last couple of years. Especially in road freight transport, road pricing systems are at least discussed in all Alpine countries, although the pricing principles, the institutional framework and the price levels differ quite significantly.

A harmonised pricing policy should first provide a framework for common pricing techniques. It is not very useful and efficient, if countries like Germany and Austria simultaneously introduce new pricing schemes that are based on different techniques. At the same time, Switzerland applies its own scheme with different On Board Units. A step towards harmonisation has been prepared on the European level but an interoperability directive for this purpose is still missing.

Secondly, a common pricing principle has to be developed. It is useful to define a social marginal cost approach as a baseline for price differentiation (e.g. according to weight criteria and EURO-norms). However due to the fact that the definition of marginal social costs in Alpine regions is very difficult to calculate and usually arbitrary, additional elements have to be considered. Most obvious is the link to total infrastructure costs, specific transport sector steering objectives and environmental targets. In this sense, price levels according to the total infrastructure costs are justified. If – like in Switzerland – additional investments in the railway's sector are foreseen, the price level could be even beyond total road infrastructure costs. In this context, road freight and road passenger transport should be considered. Cross-financing might not be a general transport policy approach for several economic reasons. Within Alpine transport however, the approach is very useful, since railways are the only alternative to guarantee non-discriminatory transalpine traffic access.

Thirdly, it has to be accepted that pricing regimes alone are not able to guarantee the essential protection aims in the Alpine regions. Coherent pricing regimes should be accompanied by additional measures. Specific traffic limitations (like night bans) are definitely possible

additional measures and very cost-effective. A weaker alternative is a differentiation according to the times of the day, as Austria is currently applying it, and a ban of the most environmentally polluting vehicles.

Finally, pricing regimes should support quality and interoperability of the railway sector, especially for combined transport. Track pricing along the Alpine corridors, one stop shops and better quality are corner stones of sustainable rail solutions. Track prices should consider environmental and quality criteria at the same time, in order to provide incentives for improved rail solutions.

Trans-Alpine transport policy is a very political topic in all Alpine regions. Thus, it is not easy to provide scientifically based recommendations for an implementation path towards more cohesion. The introduction of kilometre-dependent schemes for road freight transport in Germany and Austria is definitely a first step in this direction. A next step might become apparent during the discussions between Austria and the European Commission on the abolishment or modification of the Ecopoint system. After that, a discussion of more general road pricing solutions, including passenger cars, could follow, maybe in the context of the development of the trans-Alpine railway corridors in Austria and France. In any case, there are several policy windows visible in the future. Thus, some leadership from the European Commission towards more coherence in transport pricing would be desirable. A first step has already been undertaken with the approaches described in the White Book on the Common Transport Policy.

### **3.4 Presentation of the methodology for the New Framework Directive on Infrastructure Charging**

Christophe Deblanc of the European Commission presented the latest developments in the European transport infrastructure charging policy. Currently a great diversity of infrastructure charging regimes in Europe is contributing to an inefficient use of transport infrastructure, a distortion of competition and an unfair distribution of transport costs. Starting from the 1995 Green Paper ("Towards fair and efficient pricing in transport") and the 1998 White Paper ("Fair payment for infrastructure use") all the way up to the 2001 White Paper on the Common Transport Policy, the European Commission has been promoting a progressive and consistent approach towards a more sustainable and effective transport charging policy.

Such a progressive approach should be based on the following principles:

- The "user-pays" and "polluter-pays" principles: the user should pay the costs incurred from the use of the infrastructure.
- External costs should be internalised:
  - congestion costs,
  - accident costs,
  - environmental costs (air pollution, climate change, noise);
- The charging scheme should be designed on a non discriminatory basis.

The 2001 White Paper on the Common Transport Policy sets out the procedure for arriving at a framework directive on transport infrastructure charging. As a first step, a methodological working paper will be published after October 2002. This paper will present the goals and a timetable for the development of the framework and the modal directives. It will also clarify the methodological options to be used to determine the costs of transport. In a second step, expected for the first half of the year 2003, the framework directive itself will be discussed and adopted. It will define the cost structure to be applied and the corresponding methodology, set up the conditions for exceptions and define a structure for the monitoring of the implementation.

At this point, a number of questions are still open for discussion. For road transport these include: What degree of compensation of existing taxes and of excise duties on fuel should be chosen? What should be the differentiation in time and space? Which vehicle types should be charged? On what roads? How can the specific properties of sensitive areas (e.g. Alps) be taken into account?

In the railway sector the main open questions are: How should scarcity of capacity be charged? How can environmental costs be internalised without jeopardising the position of the railways? How can the specific properties of sensitive areas (e.g. Alps) be taken into account?

The most important issues related to the financing of infrastructure are: Should there be upper limits for mark-ups? What should be the territorial demarcation for the mark-ups? Should the revenues from transport be earmarked?

The time for the implementation of a harmonised transport charging system is now. The specific policy chosen should be complementary to other transport policies and it should take into account the specific properties of sensitive areas in Europe.

### **3.5 The future of the Austrian Ecopoint system: View of the European Commission**

Günther Ettl of the European Commission briefly presented the position of the EU Commission on the possible extension of the Austrian Ecopoint system beyond the end of 2003. The original idea of the Ecopoint system, to create an incentive for transport operators to use more environmentally friendly vehicles and thereby reducing the NOx emissions, seems to have worked well. However, the majority of the trucks on Austrian roads is not subject to the Ecopoint system but operates either in local or bilateral transport, with a CEMT permit or consists of trucks below 7.5 tons. A clear drawback of the Ecopoint system is that it only accounts for NOx emissions and not for other negative effects like noise.

The Ecopoint system could be extended for one year but in the long term, it should be replaced by a system that takes into account all aspects of sustainable mobility. This has to be combined with complementary measures in terms of infrastructure improvements and the use of new technologies.

### 3.6 Discussion

1. *The harmonisation of rail charges* – A harmonisation of rail infrastructure charges in Europe will be required. Now, this harmonisation is still a long way off but the European association of rail track managers is currently working on harmonising the structure of the charges (e.g. how different train configurations are charged differently). The question of cost recovery is purely political (Perkins, Stone). Immediate action in the rail sector is not quite as important as in the road sector because for rail a charging directive already exists (Lundstrom). For the Alpine areas, it is important to differentiate according to the noise levels caused by the railways (Maibach).
2. *Mark-ups on rail infrastructure charging* - Currently mark-ups on rail infrastructure charges are only allowed in exceptional cases (Deblanc). However in order to achieve full cost recovery, mark-ups sometimes have to be as much as ten times of the marginal costs but full cost recovery should be the rule rather than the exception (Rothengatter). Applying the principles of Social Marginal Cost Pricing only a small fraction of the rail infrastructure cost will be covered (Perkins).
3. *Sensitive areas* – In the Alpine case, higher prices charged in sensitive areas should be restricted to the area defined in the Alpine convention (Herdina, Maibach).
4. *Cost recovery* – The question of cost recovery is not just a political one but also an economic one. The aim has to be to set prices that act as a steering instrument through the right incentives (Rothengatter).
5. *The current status of the European Commission's work on a proposal for a new Framework Directive* – The Commission document to be published in October 2002 will be considered a discussion paper and will therefore contain a number of open questions rather than answers to all questions. Any new pricing regime should be accompanied by certain adjustments in other fiscal measures. The new proposal will also open the debate with the Member States on the types of vehicles to be charged and the types of roads to include in the system (Deblanc).
6. *Transport infrastructure charging in the context of other instruments of transport policy making* – Road pricing alone may not be sufficient to solve the problem of trans-Alpine transport (Zauner). Other measures, including rules, regulations and technology, will form a vital part of the national and European transport policies (Deblanc). The main criterion should be the effectiveness of transport policy independent of the combination of measures used. Pricing may not always be the most effective measure to use as high transport prices could have negative effects in some cases (Viegas).
7. *The future of the Austrian Ecopoint system* - Specific measures like the Ecopoints will be replaced by more global solutions in the medium term. An absolute limit on the number of trips, like the 108% limit in the Austrian case, is not likely to be considered for Austria or other countries in the future (Ettl).
8. *Cross-subsidies from road to rail* – In the 2001 White Paper on the Common Transport Policy the suggestions for cross-subsidies are largely limited to sensitive areas. However, this restriction may be under discussion in the new Commission proposals for the new Framework Directive (Deblanc). An integrated approach for transport infrastructure

pricing for the entire transport sector should be implemented which includes the internalisation of all external effects from all modes (Lundstrom). According to the subsidiarity principle, the use of revenues from road pricing should be entirely up to the Member States. This includes cross-financing across regions and modes (Liechti).

9. *Social Marginal Cost Pricing (SMCP) vs. pragmatic use of an "effective and efficient" road pricing system* – In its more recent proposals the Commission is not insisting on the implementation of a pure SMCP system but is rather emphasising the practicability and effectiveness of the system (Deblanc). Currently the EU seems to be proposing a linear pricing system. Instead, a multiple pricing system should be considered that allows a more differentiated and targeted approach to the specific problems at hand. Furthermore full cost recovery – which is generally inconsistent with SMCP – is vital for adhering to the "user pays principle" (Rothengatter).

## 4 Session 4: Recommendations to policy makers

Chair: Felix Walter (Ecoplan)

In Session 4 of the workshop, the participants were presented a list of ten (provocative) draft recommendations to policy makers, which served as a starting point for the discussion. About thirty participants of the workshop were split up in three groups that discussed the draft recommendations.

The following text is based on the initial ten recommendations, but has been changed according to the statements made in the discussion after session 4 and the other sessions, too. In this sense, the following recommendations are also a concise summary of the opinions expressed at the workshop.<sup>2</sup>

### 4.1 Multiple objectives - multiple instruments

**In Alpine transport policy, there are multiple objectives and a variety of instruments. Objectives have to be set in a political process. Pricing and financing mechanisms are effective tools but they will not solve all problems. A comprehensive Alpine transport policy needs to include pricing and financing instruments, but should not be limited to those. Additional complementary measures will be necessary.**

It is important that the European Commission as well as the Member States clearly **define their objectives** with regard to trans-Alpine transport. In order to achieve these objectives, appropriate instruments should be selected.

Road pricing alone will **not be sufficient** to solve all problems. Other measures, including rules, regulations and technology, will form a vital part of the national and European transport policies. The main criterion should be the effectiveness of transport policy independent of the combination of measures used. Moreover, pricing may not always be the most effective measure to use as high transport prices could have negative effects in some cases.

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<sup>2</sup> The statements and opinions presented in this chapter do not necessarily represent a consensus among all workshop participants and may therefore differ in some instances from the opinions of single participants or participating institutions.

## 4.2 The role of social marginal cost pricing

**The pure SMCP concept cannot be realistically implemented. However, adhering to its core principles, it is recommended to develop more differentiated, mileage- or load-related and comprehensive pricing schemes across Europe. Economists alone cannot set right price levels for infrastructure use. The level of road and rail charges has rather to be set according to policy goals, distributional questions and financing needs.**

Pure Social Marginal Cost Pricing **only works in economic theory** but does not live up to challenges of a complex real world pricing system. SMCP cannot be realistically implemented; it often sends the wrong signals and can even be counter-productive in some instances (e.g. less used, low quality roads in peripheral areas would be much more expensive for the individual user than high quality roads in the centre of Europe; due to decreasing accident costs in traffic jams all roads should be permanently overcrowded). Even more, the concept of SMCP was compared with the magical, non-existing animal called "Eierlegende Wollmilchsau" in German: Just as you cannot get eggs, wool, milk and pork from one single animal, you cannot reach multiple objectives with one single instrument (SMCP).

In its more recent proposals, the Commission is not insisting on the implementation of a pure SMCP system but is rather emphasising the **practicability and effectiveness of the system**. Currently the EU seems to be proposing a linear pricing system. Instead, a multiple pricing system should be considered that allows a more differentiated and targeted approach to the specific problems at hand. Furthermore full cost recovery – which is generally inconsistent with SMCP – may be preferable if one has to adhere to the "user pays principle".

However, the core principles of SMCP are important 'signposts' in the direction of a pricing system that is more differentiated according to time, location and environmental performance of the transport service, and it will contribute to a more efficient and environmentally friendly use of existing infrastructure. The territoriality principle ("pay where you use the infrastructure") should have a more important role than today. Above all, flat taxes should be replaced by **mileage related taxes** in order to increase incentive effects. Hereby, it is widely recognized that the following costs should be reflected in any transport pricing scheme:

- Infrastructure costs (=producer costs)
- Congestion costs (=user costs)
- External costs (air pollution, traffic noise, accidents, health costs)

In order to **avoid new distortions between countries** and within countries (detour traffic), a road pricing scheme should include all motor vehicles and at least the highway and main road network. In order to improve acceptability of the pricing schemes, it is possible not to include passenger cars in a first stage.

### 4.3 The Alps as a sensitive area

**The Alps are a sensitive area with regard to the impacts of transport. This should be recognized when applying pricing schemes to trans-Alpine corridors. However, the concept of sensitive areas cannot be exclusively used in favour of the Alps.**

It is dangerous to apply cost calculations of 'normal' interurban roads to Alpine corridors. Therefore, setting certain **limits with regard to capacity and ecological burden** should be taken into consideration. In this respect there were arguments in favour of combining an Eco-point system with a future pricing system while other people argued that pricing and Ecopoint system are based on two different philosophies and should not be combined. In general, it was recommended that the EU and the Alpine states should aim at a transport policy as outlined also in the Transport Protocol of the Alpine Convention.

In order to avoid demarcation problems in future pricing discussions, the **definition of the Alpine area** given by the Alpine Convention should be adopted. The participants of the workshop also demanded from the European Commission to present its ideas on how to identify sensitive areas in general and how to make use of this concept in the ongoing charging debate.

The concept of 'sensitive areas' cannot be limited to mountain areas: Depending on the methodology chosen, it could also be applied to **urban areas with a high population density**, where emissions cause severe damages as well. Therefore, supporters of the Alps should not rely on this concept too much as other areas than the Alps might be considered even more sensitive, which could have a negative impact on the effectiveness of pricing measures in the Alps.

### 4.4 Cross-financing

**Cross-financing from road to rail and combined transport can be efficient, politically acceptable and – in the case of rail investments – even necessary. As cross-financing is mainly a distributional issue, it is supported by potential winners and opposed by those who might lose. Cross-financing is a legitimate instrument of transport policy, but it has to meet clear preconditions.**

Cross-financing from road to rail and combined transport can be very useful for the Alpine region, since **railways and combined transport are vital elements in a sustainable Alpine transport system**. Nevertheless, the examples of Switzerland and Brenner show that user charges for new railway tunnels will cover only a small part of the investment and operation costs. These projects need large amounts of funds from other sources (state and/or cross finance). From an economic point of view, **welfare differences** between various financing scenarios (including cross-financing) are rather small.

**Road organisations** like the IRU are on principle opposed to cross-subsidies in favour of rail. They argue, first, that this is unacceptable for road transport users. In addition, it may not

change the modal split considerably, as has been demonstrated in the past. The IRF does not absolutely oppose cross-financing, but claims cross-financing should be an exception, as it induces economic losses. On the other hand, the **CER and T&E** are in favour of cross-financing. This follows from the insight that the transport system has to be effective on the whole. The differentiation between modes leads to a fragmented picture of the transport system. Under certain conditions, cross-financing can help to improve the acceptability of pricing schemes (Example of Switzerland).

The participants of the workshop discussed **different possibilities for the use of revenues** from road pricing schemes, cross-financing from road to rail just being one of them:

- It is recommended to consider the possibility to earmark revenues to projects for environmental improvements or for compensations for inhabitants or regions suffering from transport externalities.
- According to the subsidiarity principle, the use of revenues from road pricing should be entirely up to the Member States. This includes cross-financing across regions and modes.
- Revenue from road pricing should not be exclusively earmarked to the transport sector. It might be also wise to reduce other taxes such as non-wage labour costs.

There is a consensus among the participants that cross-financing should not be allowed under any circumstances. There should be **clear preconditions for cross-financing**:

- Cross-financing must not be regarded as a substitute for a railway reform in Europe. On the contrary, the realisation of the reform process should be a precondition for cross-financing to rail. Improving the quality of railway services will be a crucial complement to any new road pricing system. Part of this improvement could be brought about by allowing private intermodal terminals.
- The Alpine countries should be aware of the risk of creating overcapacities in rail freight transport, if each country independently builds new infrastructure. This calls for a co-ordinated strategy for infrastructure development in the Alpine region.
- The ear-marking of transport pricing revenues to other transport modes, different locations or other economic sectors should be limited in time and the rationale behind the earmarking must be verified regularly.
- Cross-financing should be dedicated to specified and effective projects. The goals and conditions should be specified and communicated to those who pay.
- In the 2001 White Paper on the Common Transport Policy, the suggestions for cross-subsidies are largely limited to sensitive areas. However, this restriction may be under discussion in the new Commission proposals for the new Framework Directive.

#### 4.5 Improving acceptability

**Carefully consider acceptability problems of pricing schemes. There are different possibilities how to improve acceptability.**

In many cases, equity considerations are by far more important for the acceptability of a pricing strategy than efficiency or overall welfare issues. The **main recommendations** with respect to acceptability are:

- Use quality as a justification for price increases
- Combine the use of pricing with other forms of supply and demand management
- Carefully analyse distributional effects in advance (try to create win-win situations)
- Use the revenues as a means of compensating distributional effects
- Keep the scheme transparent and accountable
- Integrate stakeholders in all stages of planning and implementation (participation and communication)
- Avoid shocks resulting from the introduction of new transport pricing regimes and from the (possibly less accepted) use of their revenues

Repartition of revenues from road pricing for improvement of all transport system components can form a **compensation** for those who pay and use the (better) road infrastructure, as well as for those who cannot or do not want to pay (in form of better public transport and improvement of the environment). In addition, the long-term developments of the rationale of compensation payments (e.g. social-external costs of transport) and long-term consequences of compensation payments (e.g. change of peoples' behaviour) should be considered in each particular case.

#### 4.6 Interoperability of pricing schemes

**The European Union has to provide a framework for interoperable technical and institutional solutions for pricing schemes.**

Many countries are on the way of introducing new forms of road pricing. However, it is neither useful nor efficient if these countries apply different techniques that are not interoperable among each other. In this context, it is recommended to design the debit system such that a **dual charging system** is possible:

- Individual pricing of different areas or types of area
- Individual charging of different user types.

Considering other technical systems with different co-existing standards (e.g. the mobile telephone market) it is expected that industries will develop **multi-functional On Board Units** that are able to cope with various technical standards in different countries. Thus, the necessity to pre-define a single European standard is not seen.

#### 4.7 Harmonisation of pricing systems

**In order to avoid distortions, pricing systems in the Alps should be harmonised, following the principles of territoriality and non-discrimination. The cost calculation principles should be harmonised, still leaving a range for the overall price levels. No consensus was reached in the question of setting upper or lower limits to pricing.**

Distortion and discrimination are key factors to be avoided within a territory/region and within specifically defined groups of operators, consumers, etc. Across various territories or groups, non-discrimination or distortion of competition is usually less important (e.g. reasonable differences in charges for heavy goods vehicle in Spain and Germany will not lead to any distortion in competition). In order to ensure **non-discrimination**, the EU Member States should agree on a common methodology for the calculation of prices. However, the argument of harmonisation (methodology and technical) should not be used to delay the introduction road pricing systems. All necessary information is already available to proceed with the implementation phase now. Furthermore it is quite clear that high charges for the use of roads in the Alpine areas alone will not have a significant impact on transport flows; crucial is what happens to prices outside the Alpine areas, from Northern Germany, the Benelux and Scandinavia all the way to Italy and France. These pricing strategies across the countries have to be part of a larger strategic effort.

The issue of **lower and upper boundaries** for road user charges set by the EU was discussed with some ambivalence on part of the participants. Generally, pricing is seen as an instrument for certain politically defined objectives. A majority of the participants agreed that lower and upper boundaries would unnecessarily limit the scope for policy making to use pricing as an effective instrument. However, this presupposes a well functioning multi-level democratic system on the European level that will prevent the promotion of certain local/regional/national interests through pricing policy. Without such a system of consensus and co-ordination, competition could be grossly distorted by countries essentially subsidising certain routes or modes of transport (e.g. as to make their favourite seaport more attractive) or blocking certain routes (e.g. Alpine crossings). It was also said that the calculation of short-run marginal infrastructure costs was too difficult and too controversial in its results. Thus, these costs should not serve as a minimal level for pricing.

The question of **cost recovery** is not just a political one but also an economic one. The aim has to be to set prices that act as a steering instrument through the right incentives. As a generally non-congested area, the Alpine region would suffer from a major deficit if applying pure short-run marginal cost prices. Thus, the necessity for a pricing scheme that guarantees full cost recovery was emphasised by some participants. In general the harmonisation of prices / revenues according to full cost recovery in Europe is seen as feasible (but not necessary). Hereby, the inclusion of external costs should be allowed. Others argued that peripheral regions could never achieve the same magnitude of cost recovery as densely populated areas in the centre of Europe without further marginalizing themselves.

The precise calculation of **external costs** will only play a limited role in the implementation of pricing schemes. In the Swiss case, external costs are still an important consideration but

overall the system mostly responds to politically defined objectives. Rather than dealing with externalities only by pricing variable factors, like the km travelled, pricing should also encompass fixed factors like the technology used. In addition, there should be specific commitments like common pollution standards and targets for CO2 reduction.

A **harmonisation of rail infrastructure charges** in Europe will be required. Now, this harmonisation is still a long way off, but the European association of rail track managers is currently working on harmonising the structure of the charges (e.g. how different train configurations are charged differently). The question of cost recovery is purely political. Immediate action in the rail sector is not quite as important as in the road sector because for rail a charging directive already exists. For the Alpine areas, it is important to differentiate according to the noise levels caused by the railways. Currently mark-ups on rail infrastructure charges are only allowed in exceptional cases. However, in order to achieve full cost recovery, mark-ups sometimes have to be as much as ten times of the marginal costs, but full cost recovery should be the rule rather than the exception. Applying the principles of Social Marginal Cost Pricing, only a small fraction of the rail infrastructure cost will be covered.

Finally, the EU should try to achieve **harmonisation of the institutional settings** for price fixing / regulation and for the allocation of revenues.

#### 4.8 **New EU framework directive: A window of opportunity**

**The planned new EU framework directive on pricing is a political window of opportunity. The European Union and the Member States have to make best use of it.**

At the moment, many countries are about to introduce new forms of road pricing (Germany, Austria and others). Therefore, the intention of the European Union to set up a new framework directive on pricing is a **limited-period opportunity to influence the future of road pricing** in Europe. The Commission document to be published in October 2002 will be considered as a discussion paper and will therefore contain a number of open questions rather than answers to all questions. Any new pricing regime should be accompanied by certain adjustments in other fiscal measures. The new proposal will also open the debate with the Member States on the types of vehicles to be charged and the types of roads to include in the system.

As the European Union as such is not able to act independently, the **Member States** should show a strong will to come to a common solution with regard to pricing and financing of transport infrastructure. On the other hand, it was demanded that the new Directive should be **pro-active** in that sense that it should not just refer to the Member States' requirements.

#### 4.9 **Co-operation among Alpine countries**

**Alpine countries should intensify their co-operation. It is recommended to establish a high level group on pricing and financing as well as a common body for monitoring the effects of different events and policies.**

After the accident in the Gotthard tunnel, a meeting of the transport ministers of the Alpine countries and the EU Commissioner was held in Zurich. They set up a "steering committee on transport safety and mobility in the Alpine area", which met on June 6, 2002 in Switzerland. Ministers will meet again in October. This co-operation should be further developed. A **high level group on pricing and financing** should be established within this framework. However, the participants disagreed on the nature and the composition of such a body. It could either consist of national representatives (high ranking government officials) or of politically appointed researchers/scientists. Some participants expressed the opinion that such a body should also include representatives of regional governments and non-governmental organisations.

As a basis for the important tasks of co-operation and decision-making, the scientific community should improve the **ex-ante appraisal of projects and policies** (including various pricing and financing schemes). A monitoring of the effects of recent events (closing of Mont-Blanc and Gotthard, introduction of the new regime in Switzerland) should be used to calibrate and improve existing models and methods.

#### 4.10 The role and limits of economic theory in policy making

**Science in general and economics in particular cannot provide sound answers to all questions of policy makers. Many decisions have to be taken politically rather than based on pure economic theory. On the other hand, this does not mean that economics has nothing to contribute to real world pricing systems. In any case, today's knowledge is good enough to start acting immediately!**

The objective of ALP-NET is to bring together scientists and to facilitate the discussion between them and policy makers. Scientific (and especially economic) recommendations can **contribute to decision-making** and give advice on some of the issues. Economic assessment should also be used to analyse the consequences of various alternative approaches. But still, there are political decisions that matter!

## **Annex 1 – Papers Presented at the 4<sup>th</sup> ALP-NET Workshop**

All papers are presented on a CD ROM (“Annex 1”) and can be downloaded from the ALP-NET homepage under [www.alp-net.org](http://www.alp-net.org).