

ASSET Newsletter 2

July 2009

Introduction

A major aim of the ASSET project, co-funded under the 6th European Research Framework Programme, is to analyse potential policy instruments for the protection of Transport Sensitive Areas (TSAs) and their applicability to different TSA categories. A transport sensitive area (TSA) is an area where the presence of a transport route clearly causes the quality of the area to deteriorate more than the presence of the same transport route in another area because the local impacts caused are particularly high.

In our last newsletter, see <http://www.asset-eu.org>, we reported on our work to develop a set of criteria and indicators for identifying TSAs. We considered all modes of transport and assessed these against selected sensitivity measures. Finally we identified different types of TSA dependent on the nature of the environmental pressures from transport: areas sensitive to noise, air pollution, accidents with hazardous goods and the presence of transport infrastructure.

This newsletter reports on the results of the development of policy measures for different types of TSAs, as documented in Deliverable 4 of the project, and highlights the usage of these with extracts from some of the case studies to be reported on in full in an upcoming newsletter.

Extraordinary Policy Instruments for TSAs

TSAs require extraordinary policy instruments that act directly in a short term period on pressures and impacts. These can be fast acting additional or more stringent implementation of existing measures in situations in which local conditions heavily affect TSAs. From an initial review of policy instruments, we have identified five broad categories of potential extraordinary instruments: Pricing policies and incentives, taxes, regulatory measures, infrastructure, information and public awareness. These instruments have been mapped to the different types of TSA in the table below.

Policy Packages for TSAs

From our review of different types of policy measures for protecting TSAs we find that those measures which can be considered extraordinary are broadly based around pricing and regulatory instruments (including road pricing, congestion charging, tolls, area licensing, permits, low emission zones and other forms of zone control). The purpose of combining these different policy responses into packages is to reinforce benefits achieved by any one particular policy while compensating for: inequalities (including financial), political barriers and maintaining a mix of short-term and long-term measures. The policy packages are distinguished by type of region (urban areas, mountainous areas, non-mountainous ecosystems, and coastal and maritime ecosystems) and type of environmental pressure (noise, air pollution, accidents, and infrastructure). A selection of these policy packages has been applied in case studies, from which we provide some highlights below. A more thorough reporting on the case studies will be the subject of a later newsletter.

Final Conference

The ASSET final conference will be held on October 21st in Brussels and will present the project results, case studies and the functions of the Web tool. Policy conclusions will be outlined and discussed.

Participation is free but limited, and places will be assigned on a first come-first served basis. Upon explicit request, we can consider the possibility of refunding the cost of participation. Should you wish to attend, please contact Irina for more details. (irachieru@isis-it.com)

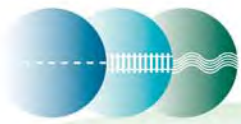


Table 1: Summary of potential policy measures for TSAs

Policy Instrument	Type of TSA			
	Noise	Air Pollution	Accident	Infrastructure
Pricing				
Cordon / Access Pricing	E possible	E possible	E possible	-
Congestion Charging	E possible	E possible	E possible	-
Infrastructure tolls and charges	E possible	E possible	E possible	-
Area Licensing	E possible	E possible	E possible	-
Taxation				
All forms	I	I	I	-
Infrastructure and Planning				
Improved Infrastructure	I	I	E possible	E possible
SEA + EIA	C	C	C	E (mandatory)
Priority Lanes	C	C	-	-
Traffic Management Systems	C	C	-	-
Regulation				
Low Emission / Environmental Zone	E possible	E possible	E possible	-
Other zone access controls	E possible	E possible	E possible	-
EU Directives and International Regulations	C, I	C, I	C, I	C
Permits and Quotas	E possible	E possible	E possible	-
Information and Public Awareness				
All forms	I, C	I, C	I, C	-

E: extraordinary measure; I: indirect impact; C: complementary measure; -: no significant impact

Policy Packages for TSAs in Mountainous Regions

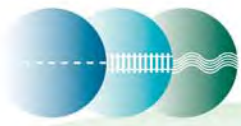
In mountainous regions, air pollution and noise problems are particularly prevalent from road transport. Hence, the main policy instruments considered for roads in these regions are route or distance based charges, low emission or similar zone controls, and tradable access permits. All of these require some technological standards and need to be complemented with enforcement and information policies. Cross-subsidisation from revenues can be used to cross-subsidise rail transport within the legal framework. Noise problems from rail can be tackled with track charges or temporal restrictions for certain trains. For both road and rail, route charges and infrastructure improvements are seen as the best way to tackle accident risks from hazardous freight transport.

An example of a tradable access permit scheme has been analysed in the case study for the Alpine Region which is briefly summarised in the box below. Another case study analysed HGV tolls for the Pyrenees in a multi-modal context.

Alpine Crossing Case Study: In this case study we consider freight transport through the Alps area as defined by the Alpine Convention (Mediterranean to Vienna). Large parts of the Alps are sensitive to transport, in particular the Alpine valleys in which the major transport corridors are located. The reasons for this sensitivity are mainly topography, touristic and recreational value as well as sensitive ecosystems. The local environmental effects caused along the Alpine road corridors are a long standing problem for the affected population.

Therefore Switzerland adopted the transport shift law which calls for reduction of about 50% of Alpine crossing lorries. A possible policy measure to reach this aim is the Alpine crossing exchange (ACE). With the ACE a cap for the number of lorries allowed to cross the Alps is set. The rights to cross the Alps can then be traded on the market. This ensures that the cap can be reached efficiently.

In this case study we analyse the effects of the implementation of the ACE on transport volumes and prices. Three different policy packages are considered. The introduction of an ACE in Switzerland alone leads to detour traffic through Austria and France (unless additional flanking measures are taken). Preferable is a coordinated introduction of the new policy measure in all Alpine countries. In this case, the right to cross the Alps by road costs about 100 to 150 € per lorry (depending on the ACE-cap for the number of lorries). This price increase can be achieved by an ACE or a fixed charge per crossing. Policy makers have to decide whether they want to target the number of lorries (ACE) or the price per crossing (charge). The ACE leads to a large shift of transport from road to rail. This has positive effects on the environment, especially on noise and climate costs, but also on air pollution and accident costs.



Policy Packages for TSAs in Non-Mountainous Ecosystems

The main policy packages for road and rail traffic in non-mountainous ecosystems are similar to those covered for mountainous areas, in particular distance and route based road charges and subsidies for rail transport from cross-financing. Differentiated track charges for rail have been omitted as these are mainly applicable to noise impacts on the population.

Regulatory measures for road traffic can be applied in the form of low emission zones, seasonal restrictions, permits or quotas for tourism traffic in protected zones. In addition, transport of hazardous goods can be restricted in certain areas. Again, information, enforcement and technological standards are required as complementary measures to improve the effectiveness of the policies.

Of high importance in ecosystems are also infrastructure planning and mitigation measures. These apply equally to road and rail transport and include the alignment of infrastructure and mitigating measures to protect habitats. Such policy packages for new infrastructure in a sensitive habitat have been examined in the Lake Vättern case study, as described in the adjacent box. Pricing and regulatory measures are further analysed in the Trans-Pennine (UK), Manzanares (Spain) and Lipno (CZ) case studies.

Lake Vättern Case Study: This case study looks at new road infrastructure that is planned to be built in this area, with the aim of improving a stretch of a north-south trunk road in Sweden. It is the focus of this case study to look into protecting this area and rerouting freight traffic on a new spur away from this transport sensitive area in order to protect the natural, socio-cultural and recreational values as well as the landscape scenery. Hence, the encroachment effect of the new infrastructure and traffic volumes has been the main focus of the study.

To protect this area, several policy packages have been evaluated in cost benefit analyses. The policies assessed are infrastructure planning, upgrading either national road 50 or alternatively county road 32 which does not pass through the Omberg/Tåkern area. Supplementary policies have been to use either a toll or a kilometre tax for redirecting HGVs onto road 32. The CBAs indicate that all policy packages would be socio-economically beneficial. The upgrading of road 50 is the most beneficial alternative, if the encroachment effect is omitted. If the value of encroachment is included, the alternative of road 32 with a kilometre tax is the preferable choice.

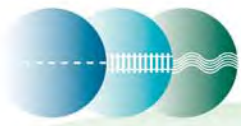
The main policy conclusion of this case study is that encroachment can be an important factor in a CBA. Pricing policies are more suitable when the aim is not to ban all non-local traffic but rather to decrease the traffic volumes in transport sensitive areas. The study also points to the importance of sensible infrastructure planning in transport sensitive areas.

Policy Packages for TSAs in Coastal and Marine Regions

Coastal and marine regions are a special type of TSA as the MARPOL convention already contains provisions to protect sensitive marine areas from pollution by oil, dumping of waste and harmful substances and exhaust emissions. In addition, differentiated harbour and fairway charges can be applied as pricing measures. These require international regulations on emission and safety standards which go beyond current values. The impacts of such regulatory as well as financial instruments are analysed in the Mediterranean case study analyses. Furthermore, oil compensation funds can be applied which provide compensation for oil pollution damage resulting from spills of persistent oil from tankers.

Policy Packages for TSAs in Agglomeration Areas

For agglomeration areas, where population densities are particularly high, noise and air pollution are the main impacts to tackle. Area or cordon charges differentiated by vehicle type and time of day appear to be more appropriate than distance based charges on a smaller scale. Revenues raised from pricing measures need to cover operational and enforcement costs and can further be used to cross-finance alternative, quieter modes as well as abatement measures such as noise barriers. Further complementary measures are information and communication policies to reduce



implementation barriers and exemptions or reductions e.g. for low income groups. Regulatory instruments that are suitable for TSAs in urban areas are zonal or temporal restrictions for specific vehicle types, e.g. lorry bans or area wide low emission zones. Accompanying measures are necessary to compensate for inequalities, cover costs of enforcement and inform about restrictions and alternatives. Traffic management measures and infrastructure improvements can further reinforce benefits. These regulatory measures can be combined with pricing measures. Different policy packages containing a mix of such financial and regulatory measures have been analysed in the Copenhagen case study as described in the box below. Pricing instruments are further analysed in the Trans-Pennine Corridor and Budapest case studies. For rail, differentiated track charges are seen as the most promising to deal with noise in agglomeration areas. Following the ICAO balanced approach, airports can support technological and operational improvements through regulatory or pricing measures, e.g. quotas or differentiated landing charges, as analysed in the Frankfurt (GER) case study. Potential revenues can be used for sound insulation, noise measurement, compensation payments etc. As complementary measures international regulations such as aircraft noise certification and the enforcement of compliance are required. Land-use planning can reduce pressures further in the long-term.

Copenhagen Case Study: The aim of the urban case study in Copenhagen, Denmark is to characterise and relate modelled air quality levels in streets and urban backgrounds to sensitive urban areas and to assess the impacts of a number of different policy measures to reduce the health burden of population exposure to urban road traffic.

Eight different policy measures are assessed that are grouped in three main types of policy: (1) technology measures in relation to environment zones (emission requirements), (2) economic measures (toll ring and road pricing), and (3) traffic management (infrastructure, traffic calming etc.).

The main purpose of the policy measures was to reduce the exceedences of the NO₂ limit value. None of the evaluated abatement measures will solve the problem of exceedences of the NO₂ limit value in 2010, but a number of abatement measures will reduce the number of exceedences significantly, and a combination of abatement measures are likely to be able to eliminate all exceedences. The two most promising abatement measures are the requirements of the German environmental zones, and SCR NO_x catalysts on heavy-duty vehicles.

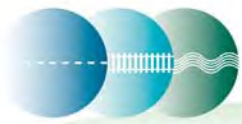
Policy measures that introduced cleaner emission vehicle technology as part of an environmental zone were more effective in reducing the environmental impacts of air pollution than pricing measures (toll and road pricing) and traffic management. The emission reductions were much higher for technological measures than the modest reductions in traffic achieved with pricing measures and traffic management. None of the policy measures completely eliminated all exceedences of the NO₂ limit value in 2010 but some of the policy measures reduced the number of exceedences significantly.

Outlook

Mapping: The criteria and thresholds for sensitive areas will be used in the subsequent step of ASSET where maps of the SAs, TAAs and TSAs for Europe are drawn. This visualises the consequences of the definitions of different thresholds (for policy makers) and allows highlighting hotspots and areas of specific conflicts.

Case Studies: The indicators and thresholds for TSAs as well as the policy packages will be applied in 10 case studies covering mountainous areas (Pyrenees, Alpine Crossing), urban/metropolitan areas (Copenhagen, Budapest, Frankfurt Airport, Trans-Pennine Corridor), natural/protected areas (Lipno Muhlviertel, Omberg, Manzanares River National Park) and coastal/marine areas (Mediterranean Sea). Their results will finally be used to help decide what policy measures can be considered for dealing with transport sensitive areas as well as, supporting the work on the general use of policy instruments in a cross-site evaluation.

Next Issues of the ASSET Newsletter



The next newsletter will highlight results from our mapping exercises visualising the definition of different types of TSA. A further newsletter will report on the results of the ASSET case studies.

Deliverables (all available from the ASSET website: www.asset-eu.org)

Deliverable 1: Sessa C., Enei R., Siegele J., Scholz A. (2008) ASSET (Assessing Sensitiveness to Transport) D1: Definition of transport sensitive areas and classification. Rome

Deliverable 2: Lieb, C., Suter, S. Sánchez, A., Mateos, M. Ohlau, K., Sieber, N., Munier, B., Jensen, S. S., Hansen, K. M. (2008) ASSET (Assessing Sensitiveness to Transport) D2: Identification and assessment of sensitiveness, Bern

Deliverable 4: Gühneemann, A., Kimble, M., Chernyav'ska, L., Scholz, A., Siegele, J., Enei, R., Ohlau, K., Sieber, N., Ramos, B., Dostal, I., Dufek, J., Monigl, J., Berki, Z., Lieb, C., (2009) ASSET (Assessing Sensitiveness to Transport) D4: Analysing Policy Instruments. Leeds

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