ASSIST - Assessing the social and economic impacts of past and future sustainable transport policy in Europe

Workpackage 2: Transport Policy Measure Impact Assessment

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A GENERAL INFORMATION

A 1	**Category**	**Efficiency standards & Flanking Measures**
A 2	**Subcategory**	**Flanking measures - promotion, information, dialogue**
A 3	**Transport policy measure (TPM)**	**Ecodriving**
A 4	**Description of TPM**	The promotion of ecodriving is one of the objectives of the EU White Paper on Transport 2011: " Include eco-driving requirements in the future revisions of the driving license directive and take steps to accelerate the deployment of ITS applications in support of eco-driving." By changing driver behaviour, a more sustainable behaviour is fostered. Eco-driving (from the longer term "economical and defensive driving") is a style of driving that saves energy consumption, reduces air pollution emission and creates safe and relaxed driving atmosphere. It involves a number of activities that begin even before a driver turns on the engine, including route planning and basic vehicle checks. Ecodriving can also be supported by ITS / RTTI and general vehicle-infrastructure communication. Eco-driving is an alternative that does not require significant investments; it only needs educational programs, and if possible a strategic monitoring or enforcement system. Thus, it is considered one of the most cost-effective approaches to reduce fuel consumption, increase safety and improve air quality. The measure is also valid for drivers of passenger cars and not limited to transport operators. In summary, ecodriving is not only an ecological measure, but it also implies economical and defensive driving.
A 5	**Implementation examples**	-Switzerland: reduction of fuel consumption by 11,7% and increase of average speed from 47,02 km/h to 48,21 km/h [1] and [2] - Canada: during the first five weeks after the training reduction of fuel consumption of 6.5% to 15.0% on the highway and from 9.0% to 13.0% in the city; after nine months: 6.2% on the highway and 7.2% in the city. - Jakarta and Surabaya (Indonesia): GTZ training of bus drivers achieved an energy reduction of 7-15% - Buenos Aires: fuel savings 14,2%, increase of average by 7,3% - Mendoza (Argentina): fuel savings of 15-18%
A 6	**Objectives of TPM**	The TPM is aimed at reducing energy use from transport and thereby the impact of oil prices on transport costs in road transport. By reducing the fuel consumption, significant cost savings can be achieved. Furthermore, ecodriving increase the safety of professional drivers and increases job satisfaction.
A 7	**Key changes concerning:**	
A 7.1	- Choice of transport mode / Multimodality:	Possible change
A 7.2	- Origin and/or destination of trip:	No change
A 7.3	- Trip frequency:	No change
A 7.4	- Choice of route:	No change
A 7.5	- Timing (day, hour):	No major change
A 7.6	- Occupancy rate / Loading factor:	No major change
A 7.7	- Energy efficiency / Energy usage:	Major change
A 8	**Main source**	[1] and [2]

B IMPACTS

B 1 OVERVIEW ON IMPACTS

		AFFECTED SEGMENTS															Geographical level		Source	
		Passengers					Transport operators													
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport	Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
B 1.1	**Summary**																	**L**	**R**	**S**	**L**
		Positive impacts, especially cost reductions, for the road transport operators, especially due to savings in fuel consumption and time savings; the time savings can be achieved through trip consolidation and anticipation of traffic conditions. Further reductions in variable costs (repairs, maintenance, tyres), the truck drivers benefit from higher levels of safety; stress reduction for the drivers and the passengers [2] The impact on the performance (fuel consumption, travel time) depend on the traffic flow rates. Under normal traffic conditions moderate acceleration is beneficial to the environment with only little impact on travel time. However, when the traffic is heavy (i.e., the traffic flow rate is 1000veh/hour) moderate acceleration significantly increased all the measures of performance. [3]																		
B 1.2	**Summary: Income groups**	No impact																			
B 1.3	**Summary: Age groups**	No impact																			
B 1.4	**Summary: Disabled people**	No impact																			
B 1.5	**Summary: Gender groups**	No impact																			
B 1.6	**Summary: Ethnic groups**	No impact																			

B 2 TRAFFIC IMPACTS

		AFFECTED SEGMENTS															Geographical level		Source	
		Passengers					Transport operators													
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport	Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
B 2.1	Travel or transport time	➔					➔											**L**	**R**	**S**	**N**
B 2.2	Risk of congestion																				
B 2.3	Vehicle mileage																				
B 2.4	Service and comfort																				
B 2.I	**Overall impacts on social groups**																				
B 2.II	**Implementation phase**																				
B 2.III	**Operation phase**																				
B 2.IV	**Summary / comments concerning the main impacts**	Applying ecodriving principles led to an increased time spent driving at a constant speed as well as drop in idle-time. [1] An Australian study showed that under normal traffic condition moderate acceleration is beneficial to the environment accompanying little impact on travel time. However, when the traffic is heavy (i.e., the traffic flow rate is 1000vehicles/hour) moderate acceleration significantly increased all the measures of performance. [3]																			
B 2.V	**Quantification of impacts**																				

B 3 ECONOMIC IMPACTS

		AFFECTED SEGMENTS															Geographical level		Source	
		Passengers					Transport operators													
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport	Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
B 3.1	Transport costs						➘											**L**	**N**	**S**	**N**
B 3.2	Private income / commercial turn over																				
B 3.3	Revenues in the transport sector						➚											**L**	**N**	**S**	**N**
B 3.4	Sectoral competitiveness																				
B 3.5	Spatial competitiveness																				
B 3.6	Housing expenditures																				
B 3.7	Insurance costs																				
B 3.8	Health service costs																				
B 3.9	Public authorities & adm. burdens on businesses																				
B 3.10	Public income (e.g.: taxes, charges)																				
B 3.11	Third countries and international relations																				
B 3.I	**Overall impacts on social groups**																				
B 3.II	**Implementation phase**																				
B 3.III	**Operation phase**																				
B 3.IV	**Summary / comments concerning the main impacts**	Reductions in variable costs: reduced fuel consumption, repairs, maintenance, tyres, leading to greater profit margins and revenues [2]																			
B 3.V	**Quantification of impacts**																				

B 4	SOCIAL IMPACTS	AFFECTED SEGMENTS																Geographical level		Source	
		Passengers					Transport operators														
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport	Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
B 4.1	Health (incl. well-being)	↗			↗		↗					↗	↗					L	R	S	N
B 4.2	Safety	↗			↗		↗					↗	↗					L	R	S	N
B 4.3	Crime, terrorism and security																				
B 4.4	Accessibility of transport systems																				
B 4.5	Social inclusion, equality & opportunities																				
B 4.6	Standards and rights (related to job quality)						↗						↗					N	I	S	N
B 4.7	Employment and labour markets																				
B 4.8	Cultural heritage / culture																				
B 4.I	**Overall impacts on social groups**	Increased job satisfaction																			
B 4.II	**Implementation phase**	The positive effects of ecodriving training decrease over time if no refreshment training is taking place [4]																			
B 4.III	**Operation phase**																				
B 4.IV	**Summary / comments concerning the main impacts**	**The total GHG reduction potential of fuel-efficient driving depends strongly on the way the measure is implemented or promoted and on the assumed effectiveness of such promotion measures. Indicative calculations for EU-15 estimate that a total reduction of 1.8 Mtonne/y could be achieved in 2012, increasing to 5.5 Mtonne/y in 2020 if eco-driving is included in the lessons for new drivers [4]**																			
B 4.V	**Quantification of impacts**																				

B 5	ENVIRONMENTAL IMPACTS	AFFECTED SEGMENTS																Geographical level		Source	
		Passengers					Transport operators														
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport	Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
B 5.1	Air pollutants																➔	L	R	S	I
B 5.2	Noise emissions																				
B 5.3	Visual quality of the landscape																				
B 5.4	Land use																				
B 5.5	Climate																↘	L	R	S	L
B 5.6	Renewable or non-renewable resources																↘	L	R	S	L
B 5.I	**Overall impacts on social groups**																				
B 5.II	**Implementation phase**																				
B 5.III	**Operation phase**																				
B 5.IV	**Summary / comments concerning the main impacts**	The main environmental benefit from ecodriving concerns the reduction of fuel consumption and CO2. Furthermore, ecodriving also reduces air pollutants such as Hydrocarbons, carbon monoxides, particulates and nitrous oxides [2 , p.12]																			
B 5.V	**Quantification of impacts**	Ecodriving training can be very effective with savings in fuel consumption between 3-11%: 10% fuel savings on average directly after the ecodriving course. The average reduction of the mean fuel consumption rate is in the range of 9.5 % on the highway and 11 % in the city. This positive benefit was maintained approximately six months after which a significant drop was observed. The long term effect is less well known, but is expected to be significantly smaller: 5-7% savings aver a year or more [2] and [5]. Other sources claim that the long term effect of applying eco-driving is a fuel consumption reduction of between 3% to 4.5%. [4]																			

C REFERENCES

C 1	**Other TPMs of this subcategory**	Fuel efficiency labelling for new cars
C 2	**References**	**International** [1] Bureau de l'efficacité et de l'innovation énergétiques (2011). Eco-driving training pilot project for light vehicles. Ministère des Ressources naturelles et de la Faune, Quebec Website of Quality Alliance Eco-Drive (QAED). [2] GTZ (2005). Sustainable Transport. A sourcebook for policy-makers in developing cities. Module 4f: Ecodriving. Commissioned by Federal Ministry for Economic Cooperation and Development. [3] Qian, G. and Chung, E. (2011). Evaluating effects of eco-driving at traffic intersections based on traffic micro-simulation. Australasian Transport Research Forum 2011 Proceedings 28 - 30 September 2011, Adelaide, Australia; Publication website: http://www.patrec.org/atrf.aspx [4] TNO (2006). Review and analysis of the reduction potential and costs of technological and other measures to reduce CO2-emissions from passenger cars.Commissioned by the European Commission. DG-ENTR. [5] CE Delft (2009) EU Transport GHG: Routes to 2050. Operational options for all transport modes. Delft (http://www.eutransportghg2050.eu/cms/)