# Integration of Road Safety in Other Policy Areas: Synergies and Conflicts

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## Contents



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# 1 Overview

Road safety is a shared responsibility and requires a well-orchestrated and sustained contribution from many sectors. At the same time the recommended *Safe System* approach aligns well with many other societal objectives for public health, sustainable mobility and occupational health and safety. See ERSO Road Safety Management web text.

The integration of road safety into other policy areas can be understood as the systematic, mainstreaming of road safety into other related fields of policy. The co-benefits achieved from this approach strengthens business cases for a range of intervention A useful tool towards reaching this goal is the experience of integrating environment into all policy areas which was undertaken a decade ago following a new requirement of the European Treaty of Amsterdam. Useful synergies can be created and achieved and certain objectives can be met through integrating safety into other areas, in line with the *Safe System* approach.
For integration to achieve these benefits, potential conflicts need to be considered as well as ways of overcoming them.

This web text looks at what integration means in relation to several policy areas and examines three key policy areas in more detail: employment, environment and health. These topics were chosen as they arguably have the strongest links to road safety policy. A longer list of other issues are then discussed which represent a second tier of policy areas where there are clear links with road safety. These include trade and procurement, liveable cities, transport accessibility and equity, development co-operation, policing and tourism.

The integration of road safety into other policy areas is also included in a number of EU road safety policy frameworks. It is one of the three main principles of the European Commission's Road Safety Policy Orientations 2011-2020. In 2010 Transport Ministers also included a strong commitment to integration in their Road Safety Council Conclusions. The European Parliament's report on road safety adopted in 2011 also supported integration adding that it called for "an exceptionally high degree of coordination". There are some examples of structures to manage and carry through integration at a national level, such as the Inter-Ministerial Committee in France.

The advantages and disadvantages of road safety policy integration are also discussed. On the positive side these include the added strength in achieving joint objectives, pooling of resources and greater efficiency. However, integration can highlight conflicts where reaching one objective such as road safety, may have disadvantages for another. On balance, looking at possible synergies and potential conflicts, the end result should emerge stronger for all involved.

***Work-Related Road Safety***

Improving work-related road safety (WRRS) will also contribute to improving road safety as a whole in Europe. A large number of the 30,100 lives lost on European roads in 2011, were related to driving for work or commuting. Road traffic collisions accounted for nearly 40% of incidents at work resulting in death. This is one of the strongest areas for explaining synergies between road safety and another policy area. The paper sets out the EU policy background and then presents the business case for the integration of road safety into employment policy. Workplace health promotion (WHP) is another related issue of paramount importance; it taps into matters such as lifestyle, work/life balance, and general wellbeing and is likely to cover a large number of driver-related risk factors such as for example fatigue and consumption of alcohol. Excessive and inappropriate speed is the number one road safety problem and also needs to be tackled from the 'driving for work' perspective. Employers can look at changing journey planning, just-in-time management and applying the use of driver assistance technologies to dramatically reduce the speed risk factor. See also ERSO Work-related road safety web text.

***Environment***

Road safety benefits can be generated by addressing environmental topics. At the European level the arenas of transport and environmental policy are clearly linked and much work has been carried out over the last decade to ensure an integrated approach towards these two policy areas. However, the opportunity exists for further integration to capture the safety benefits of, for example, combining trips or promoting safer public transport. This paper looks at a number of areas in more detail; one is land-use planning and travel demand management. This can consist of consolidating development, making use of fiscal measures such as congestion charging and walking and cycling improvements. Although cycling and walking are currently less safe than the car per distance travelled, these modes need to be encouraged for large public health benefits and the safety of walking and cycling needs to be a key objective of safety management. Another topic covered in more detail here is speed management where there are clear synergies between fuel-efficiency, reducing Green House Gases (GHGs) and safe driving. Eco-driving and the use of in-vehicle systems such as ISA are also mentioned as ways to reduce speed for the dual benefits of increased safety and lower emissions.

***Health***

Road traffic injury and its links to public health is the third topic looked at in more detail. There is a strong business case to include the prevention of road traffic deaths and serious injury on the health agenda as their associated costs to the health system across Europe are considerable. Alcohol and health is another major issue linked to road safety. Drinking and driving is often a precursor of alcohol problems and tackling drinking and driving within a rehabilitation programme can lead to wider benefits in relation to health. The use of alcolocks can be a useful tool for managing health and bringing about improvements in road safety. Tackling obesity through promoting an active lifestyle with cycling and walking is also discussed also in relation to "safe routes to school". Reducing the consequences of road traffic injury through improvements to the emergency medical system and trauma care and

rehabiltation are also key areas for health. For a discussion on these issue, see the ERSO web text Post Impact Care.

***Road safety and other policy areas***

Other areas where there are clear links between road safety and other policy areas include trade and procurement, liveable cities, accessibility in transport and equity, development co-operation, policing and tourism. Each of these sections will discuss possible advantages and disadvantages of factoring in road safety into these policy areas. Figure 1 indicates that the interconnections between road safety are manifold and that only one part of them have been presented in this paper. The figure also shows the ways in which the different issues can be interlinked and how they overlap.

*Figure 1: Integration of Road Safety into Different Policy Areas.*


The integration of road safety into other policy areas can bring many benefits. Joint objectives can be elaborated through co-operation between different areas of work in the public and private realm. This can be of large benefit to reducing risk on Europe's roads.

# 2 Introduction

Road safety is a shared responsibility and requires a well-orchestrated and sustained contribution from many sectors. At the same time the recommended *Safe System* approach aligns well with many other societal objectives for public health, sustainable mobility and occupational health and safety. The co-benefits achieved from this approach strengthens business cases for a range of intervention. See ERSO Road Safety Management web text.

Integration of road safety into other policy areas means systematically taking the issue and mainstreaming it. Road safety can help meet a range of other societal objectives which involves identifying and resolving any potential conflicts. Useful synergies can be created and achieved and certain objectives can be met through integrating safety into other areas.

This web text looks at integrating road safety into a range of policy areas. It will examine three policy areas in more detail, these are: employment, environment and health. These have been chosen as they are the strongest areas for explaining the most obvious synergies between road safety and other related areas. A longer list of other issues are then discussed which represent a second tier of policy areas where there are clear links with road safety. These include trade and procurement, liveable cities, transport accessibility and equity, development co-operation, policing and tourism.

Each section discusses the possible advantages and disadvantages of factoring in road safety into these policiy areas and propose recommendations on how to maximize the benefits and overcome potential problems.

## 2.1 Road safety integration and EU road safety policy

In 2011 the EU adopted a new Transport White Paper (European Commission, 2011) and set new targets for reducing road traffic deaths in the EU: *"By 2050, move close to zero fatalities in road transport. In line with this goal, the EU aims at halving road casualties by 2020.*" The White Paper Communication reiterates the main elements of the recent "Road Safety Policy Orientations 2011-2020" (European Commission, 2010) published in July 2010. An "integrated approach to road safety" is one of the three top principles in the European Commission's Road Safety Policy Orientations 2011-2020 which states

"The future road safety policy should be taken into account in other policy fields of the EU, and it should take the objectives of these other policies into account. Road safety has close links with policies on energy, environment, employment, education, youth, public health, research, innovation and technology, justice, insurance, trade and foreign affairs, among others (European Commission, 2010)."

Thus the principle of reciprocality within the policy development process at European level is included in this strategy document. Moreover it is given a high level placement in the document. It comes alongside the other two principles: "highest road safety standards in Europe" and "subsidiarity, proportionality and shared responsibility". However, a structure to

systematically ensure that this guiding principle is followed through and monitored was not included and would be a positive addition to bring about its implementation. A suggestion as to how to do this at EU level is presented in Section 1.4.

The European Parliament, in its Own Initiative Report on Road Safety (European Parliament, 2011) adopted in September 2011, also supported the strategic objectives proposed by the European Commission in its "Policy Orientations". The European Parliament proposed a "road safety co-ordinator" who would bring together different actions on road safety. It explains that; *"if road safety is to be improved a coherent, holistic and integrated approach is needed which encompasses all road users and stakeholders and seeks to develop synergies with other policy objectives."* Also that: *"the mainstreaming of road safety issues in all relevant policy areas call for an exceptionally high degree of coordination".* Thus, also recognising the importance of 'integration' as a guiding principle.

Ministers at the Transport Council in 2010 adopted Conclusions (Transport Council, 2010) which prioritized measures for the new "common European area for road safety" in response to the European Commission's "Policy Orientations 2011-2020". The Ministers supported the Commissions' new ambitious target of halving road traffic deaths by 2020 and proposed that the EU "aims towards the long-term zero vision" for European road transport safety in line with the Commission's Transport White Paper. This included a strong commitment to integration

"in order to reach maximum efficiency, road safety should be integrated into other policies, together with their enforcement and implementation, such as education, health, social policy and employment, police and judicial cooperation, environment, research, insurance and taxation and therefore a holistic approach is needed."

The Council identified the main areas of European road safety policy making for the next decade with integration as one of the priorities.

## 2.2 Parallels with environmental policy integration

Integration of road safety can learn from the experience of integrating environment into all policy areas. This was a requirement of the Amsterdam Treaty and was propelled into action by the so-called **"**Cardiff process", which was launched during the European Council meeting in Cardiff in June 1998. The Treaty of Amsterdam (1997) gave a more prominent place to the principle of integrating environment into different policy areas in Article 6:

"Environmental protection requirements must be integrated into the definition and implementation of Community policies and activities referred to in Article 3, in particular with a view to promoting sustainable development (Treaty of Amsterdam, Article 6, 2010)."

In 1998, the European Commission prepared a *"Partnership for Integration"* Communication (European Commission, 1998) explaining how this could be achieved and that this would entail a "break with traditional sectoral decision-making" and called for a joint approach to be taken by Council, Parliament and the European Commission. The Commission also recognised in its communication that this would be a long term challenge requiring a step by step approach which builds on experience. During its June 1998 meeting in Cardiff the European heads of states and governments requested all Ministerial Councils to develop integration strategies, with energy, transport and agriculture called upon to start off the process. In the next years, two further 'waves' were initiated calling on Industry, Internal Market and Development, Economic and Financial Affairs, General Affairs (GAC) and Fisheries to join the process. These and other European Councils requested that progress should be monitored using indicators, taking into account the Commission guidelines.

## 2.3 Integration bodies at national level

At a national level there are examples of managing road safety involving interaction with other policy areas (ETSC, 2006). Well-orchestrated cross sectoral co-ordination with a strong focus on achieving resullts is crucial and the setting out of clear institutional roles and responsibilities is, therefore, of paramount importance. See ERSO Road Safety Management web text for full discussion.

Institutional arrangements may include an Inter-ministerial Transport Safety Committee with the Prime Minister as chairperson. Another coordination body with a key role in many countries is the National Traffic Safety Council, which should meet periodically and act as an institutionalised round table for consultation with stakeholders. A single leading agency accountable and with enough powers and management capacity, is in most cases, indispensable to avoid sub-optimal coordination of road safety responsibilities (ETSC, 2006).

**France- Inter-Ministerial Committee for Road Safety**

As far back as 1972, in response to a proposal by the then French Prime Minister the first "*National Delegate for road safety*" was nominated reporting directly to the Prime Minister. The task of this high ranking official was to organise and coordinate an "Inter-ministerial committee for road safety", chaired by the Prime Minister himself and consisting of all the government ministers concerned, 12 in total. The terms of reference of this committee were to "define government policy in the field of road safety and ensure its application". The committee was "tasked with adopting all necessary directives and preparing the necessary draft legislation, as well as examining the annual road safety investment programme as part of ministerial budgets". The committee continues to exist to this day and meets at regular intervals**.**

## 2.4 Integration of road safety into different policy areas

***The benefits and disadvantages***
The benefits of integrating road safety into other policy areas are manifold. Employment, environment and health are highlighted for closer attention as they are the three areas which are most obviously associated with road safety. This web text identifies linkages to be made in these areas as well as the benefits and potential challenges to be overcome.

By linking with *driving for work,* reducing risk in this area can render benefits to a great number of journeys undertaken and contribute to improving road safety. Driving for work also touches upon key road safety risk factors such as speed and alcohol. *Environment policy* underpins a number of road safety benefits such as promoting safe and also green public transport modes. *Health policy* has a long-standing base for treating road injuries and deaths as a public health, not just a mobility problem.
Later sections identify other areas with clear links to road safety. Research could usefully identify a theoretical model for selecting the related policy areas and applying the integration process to them. For example, sustainable development, with its three pillars of environment, economics and social could have been selected. However the approach was taken to choose policy areas which clearly and currently overlap with road safety, Figure 1 (see Overview) shows that the interconnections between road safety are manifold and the ways in which different issues can be interlinked and how they overlap.

The main value of integrating road safety into other policy areas is the co-benefits that than can be achieved using shared objectives. One example explored in this web text is speeding where the introduction of speed limits, speed enforcement and controls in transport policy also brings environmental benefits of reduced greenhouse gases. The co-benefits achieved strengthen the business case for these interventions. Policing the roads, is a further example which can bring benefits, not just in improved compliance with road safety laws but, through the presence of Police, deterrence of criminal activities and support for safer communities. An alignment of policies needs effective co-ordination as discussed previously at European level, national, regional or local levels and also within public and private sector organisations. Here synergies may be discovered in the process that the different partners were not even aware existed.

Integrating road safety into another policy areas can also help in. pooling resources to realise shared objectives. The management of equity, mobility or lack of it can often have a big effect on a person's health, employment prospects and social interaction. Breaking down the barriers to mobility can bring about multiple benefits. Another benefit to integrating road safety concerns into mobility is also improved efficiency for example by using journey planning within freight transport. There is also a clear business case to be made in integrating road safety measures into driving for work. Real savings in preventing the loss of life or serious injury as well as in wear and tear of vehicles and fuel consumption.
Safety also has a strong role to play in the market. Consumers do take note of safety concerns in their vehicle purchasing. The automotive sector makes up an important part of

the European economy and in trading relations with the rest of the world. The EU has the reputation of being the global centre of the safest vehicles. Business such as those providing a transport service can also build on this by including safety as an advantage  point to win a contract within procurement. The Swedish Trade Council has even launched the *Vision Zero* initiative to export the concept and road safety-related services globally. Thus safety can also be an important factor in sales and marketing either of a vehicle, a service or even a concept.

However, integration can also bring up conflicts, where reaching one objective may have disadvantages for another. One example can be identified with the new promotion under health and climate change of zero carbon modes of cycling and walking which are currently the riskier modes.  Here, however, general health benefits outweigh the risks incurred.

Reducing road risk exposure by reducing travel may also make sense. For example, looking at vulnerable groups, encouraging fragile elderly people to walk to the bus stop or a child to walk to school is problematic. However,  there are many other important reasons why people are obliged to, or even choose to move. Safety should not be a barrier to mobility, instead efforts should be made to make mobility and all different modes as safe as possible.

Another concern is that through road safety integration, road safety may result in being a casualty of its own success.  in that it loses its own separate profile. Road safety thus requires the careful leadership of a results-focused strategy for the long-term and the interim if it is to be brought, as it must, to the core of jurisdictional as well as organisational management systems. It is clear that through looking at possible synergies and also potential conflicts the end result should emerge stronger. Through co-operation between different representatives of linked policy areas exchanges will emerge with ideas on how to overcome problems and identify and reach common objectives.

Strategies to bring about this integration should be part of every road safety plan be this at a European, national, regional or company level. Within the EU, for example, a strategy could be adopted to achieve a stringent integration of road safety in all policies that have an impact on road users' risk levels (ETSC, 2009).  A mechanism is needed to guide the process in the safe way as environmental impact assessment is currently used.

# 3 Work-Related Road Safety

Driving for work entails journeys undertaken during working hours.  In European Union countries, 30,100 lives were lost in 2011 and of  those a large percentage were related to driving for work or commuting (see Figure 2). Figures show that road traffic collisions (European Commission, 2009) accounted for nearly 40% of incidents at work resulting in death.[1]  Improving work-related road safety (WRRS) contributes not only  to improving road

[1] This refers to the 'transport branch' and fatal Road Traffic and Transport Accidents in the Statistical Classification of Economic Activities in the European Community. The data do not include communiting nor do they include Ireland or the UK.

safety at work, but in general. This is one of the strongest areas for explaining synergies between road safety and another policy area.

*Figure 2: Road collisions while working and commuting*

| Country (data for 2007, except Germany 2006) | Austria | Belgium | France | Germany | Spain |
|---|---|---|---|---|---|
| Total deaths | 192 | 175 | 1,029 | 1,117 | 1,167 |
| % of which on the road | 54 | 53 | 48 | 61 | 40 |
| Total deaths at-work | 130 | 96 | 622 | 642 | 826 |
| % of which on the road | 32 | 32 | 23 | 34 | 20 |
| Total deaths commuting accidents | 62 | 79 | 407 | 475 | 341 |
| % of which on the road | 100 | 81 | 86 | 97 | 89 |

This section sets out the EU level policy action in this area and considers the advantages and possible disadvantages of integration.

See also ERSO web text on Work-related road safety.

## 3.1 EU level policy on work-related road safety

The EU is addressing this topic both in the transport and the employment sectors. From the employment perspective the EU has adopted “Improving Quality and Productivity at work: Community Strategy 2007-2012 on Health and Safety at Work”. As part of this the Commission proposed the ambitious goal of achieving by 2012 a 25% reduction in the total incidence rate of accidents at work (number of accidents at work per 100.000 workers) in the EU 27. At present, there are no specific measures focussing on reducing death and injury whilst driving for work. Clearly this should be included in the next Community Health and Safety at Work Strategy as a priority.

In terms of EU legislation, occupational health and safety and road safety compliance are legal necessities in all EU Member States. The European Framework Directive 89/391/EEC on the health and safety of workers (Directive 89/391/EEC of 12 June 1989) requires every employer in Europe to undertake a risk assessment according to the principles of prevention. However this does not include employees travelling for work. Some Member States have supplementary legislation detailing employers’ obligations to eliminate risks related to driving for work. The European Commission, together with the Advisory Council of Health and Safety at Work, has prepared a Guidance document (European Commission, 1996) on applying the Directive 89/391/EEC. This covers key definitions of risk assessment and methodology on how and where to revise and review the risk assessment. Specific Guidance for Reducing Work Related Vehicle Risk is due for development by 2015.

Looking at this topic from the transport perspective, the EU is active in road safety in general and a range of measures have been introduced with relevance to employment as well. Most specific attention to work-related road safety within road traffic law has been to regulate large commercial and passenger road transport operations and the carriage of dangerous goods. A range of other initiatives include best practice guidelines on securing cargo, EU projects on weigh in motion (WIM) technologies to assist the prevention of vehicle overloading and European truck crash causation, carried out by the European industry. The European Road Safety Charter was launched in 2004 and has over 1,000 members including stakeholders from local government, SMEs, global business and the NGO community.

More recently in 2010 the Commission Communication "Towards a European road safety area: policy orientations on road safety 2011-2020" anticipates further activity on work-related safety such as review of the case for the fitment of speed limiters in light commercial vehicles, the compulsory installation of alcohol interlock devices in professional transport vehicles (e.g. school buses) and event data recorders ('black boxes') on professional vehicles.

## *3.2* The business case

A strong business case exists for integrating road safety into employment. For employers there are convincing economic arguments for preparing and implementing a work-related road safety management programme. A holistic approach to implementing a programme may also bring benefits in other areas, as safety is closely linked to quality, customer service, efficiency, and environmental programmes (Murray, 2002). In terms of efficiency this may lead to better fuel efficiency as well as less downtime due to different scheduling (ETSC, 2011). Another positive effect is likely to be reduced wear and tear of vehicles and enhanced residual value. Furthermore, a collision may result in lost orders. The reputation of an employer may be affected beyond that one day or week of lost business.

The benefits can be reflected in different ways:

- Reduced running costs through better driving standards (fuel consumption/vehicle maintenance costs);
- Fewer working days lost due to injury;
- Reduced risk of work-related ill health;
- Reduced stress and improved morale/job satisfaction;
- Less need for investigation and paperwork;
- Less lost time due to work rescheduling;
- Fewer vehicles off the road for repair;
- Fewer missed orders and business opportunities, reduced risk of losing the goodwill of customers;
- Less chance of key employees being banned from driving.

Most employers look at the cost of their insurance premiums and any excess but the far larger financial implications are the hidden costs associated with every work-related incident/collision. Research shows that typically workplace injury costs are met 40% by the employee, 30% by the employer and 30% by the community as a whole (Murray et al., 2003). The International Loss Control Institute (ILCI) states that for every 1€ paid out by an insurance company there are 8-53€ in uninsured losses, depending on the severity of the collision (ILCI, 2008). Research undertaken by the UK Health and Safety Executive (HSE, 1993) identified that the 'below the water line' 'iceberg' costs can be 8 to 36 times greater than the visible 'above the water' 'iceberg' costs. Having a WRRS programme can also boost staff morale and avoid having a high turnover of staff.

## 3.3 Workplace health promotion

Another area which will bring benefits to employers linked to road safety is workplace health promotion (WHP). This is of paramount importance, but also a real challenge for employers since it taps into issues such as lifestyle, work/life balance, and general wellbeing. Employers are likely to find that a large number of driver-related risk factors are related to health such as stress, fatigue, distraction, ageing staff, unhealthy diet, consumption of alcohol, illegal drugs or prescription medicine, pre-existing diseases, smoking and lack of exercise. When it comes to professional drivers, a number of sector-related health conditions are also frequent and include lower back pain, being overweight, cardiovascular and respiratory disease, and work-related stress (EU OSHA, 2009). This is also amplified by the fact that the population of professional drivers is an ageing group. Drivers have to work under time pressure in a highly competitive environment providing a broad spread of tasks required by clients (Eurofound European Foundation for the Improvement of living, 2004).

Workplace health promotion (WHP) encompasses all activity by employers, their employees, and society to improve the health and well-being of people at work. Examples of several WHP measures that employers can implement include enabling flexible working times; offering teleworking when appropriate; offering healthy canteen food; offering sport and relaxation classes; offering courses on social competence like dealing with stress. WHP requires commitment from both, employers and employees (EU OSHA, 2010) and, as with every safety endeavour, WHP works best when it is part of a safety culture endorsed at all levels of an organisation, starting with senior management. Research shows that investment in WHP yields a return on investment of one to 2.5 – 4.8 in reduced absenteeism costs.

## 3.4 Workplace health promotion and alcohol

The business case for addressing alcohol-impaired driving in the workplace is also strong. The vast majority of citizens with alcohol problems are employed full time. Employers can reap productivity gains and savings from a reduction in alcohol-related vehicle crashes (Network of Employers for Traffic Safety Nets). Employers of professional drivers have an important role to play in increasing the awareness of drivers about the risks of drinking and driving. Employers and fleet operators should be strongly encouraged to set up their own initiatives. This should form part of a holistic approach in setting up a road safety plan. One helpful set of guidance is set out in the ILO's Code of Practice on Management of Alcohol

and Drug-Related Issues in the Workplace (ILO Code of Practice, 1996). This recommends that every employer should, in cooperation with employees and their representatives, develop a written enterprise policy on alcohol and drugs in the work place. In some countries, for example in Belgium, all companies are obliged by law to develop and integrate in their working place rules a preventative policy for drugs and alcohol (Royal Decree of June 28, 2009)

## 3.5 Driving for work and managing speed

Excessive and inappropriate speed is the number one road safety problem. (See ERSO Speeding andSpeed Enforcement. web texts).Employers also have a strong role to play in making sure that their employees are driving safely and respecting the speed limits. Exceeding speed limits is widespread, thus a large number of non-compliers are required to change their behaviour to redress the problem.

The integration of road safety into employment policy and its management of speed also have positive results for safety and in areas of fuel efficiency. Driving at speeds which are appropriate to the prevailing conditions can offer cost savings across the board not only through a reduction in collision costs but also in terms of reduced vehicle wear and tear, reduced fuel consumption and reduced air and noise pollution.

At the same time, many drivers are under pressure to speed. Speeding has been associated with work-related traffic trying to save time whilst driving and meeting scheduled deadlines. Many people feel it is necessary to exceed speed limits whilst driving for work. Time pressures may influence drivers to participate in unsafe behaviour whilst driving, such as speeding, overtaking and following vehicles closely (Husband, 2011).

The pressures of just-in-time management in the professional transport industry, and the risks this poses to road safety in terms of issues such as fatigue and speeding, are already well documented (ETSC, 2011). However, the industry is also highly regulated when compared with other modes, with laws limiting the maximum speed of HGVs and buses on certain types of roads and requirements for the use of tachographs which store details of the movement of vehicles and of certain work periods of their drivers. Such initiatives provide a stronger framework in which to combat speeding.

Workloads are increasing and employees can face escalating pressures, for example pressures from clients to deliver faster and more cheaply, with issues such as ‘just-in-time management’, increased traffic, remote monitoring and working irregular and long hours. Drivers can be over-stressed by the demands placed on them to complete work or to deliver goods to meet the schedules of modern transport systems. If they fail to meet such schedules employers may have to compensate the client for delays incurred. These situations have the potential to encourage drivers to take risk in terms of appropriate driving speeds.

**Telematics and technologies for managing speed**

The use of telematics and new technologies which can monitor and record speed provides employers with an opportunity to continuously monitor their employees driving and speed behaviour. This is particularly relevant to professional drivers and provides a means by which employers can identify speeding offences that may go undetected by national enforcers. Insurers can incentivise the use of such technologies by linking their use to insurance premiums. With new technology, fleet managers can not only see that a speed offence took place but also more precisely the speed of the driver in the different speeding zone. Using such data, data-warehouse managers at all levels in an organisation can identify the prevalent risks, then target, record and monitor relevant interventions such as training, communications and focused one-to-one discussions. Such devices can be put in all fleet vehicles, although increasingly more detailed analysis is being used to target attention to the 5-15% of drivers that are responsible for a disproportionate number of collisions and violations in most organisations.

# 4 Integrating road safety and environment policy

Road safety and environmental considerations are high priority areas for transport. However, they are more often considered separately rather than in a coordinated manner.

At EU level the arenas of transport and environmental policy are clearly linked and much work has been carried out over the last decade to ensure an integrated approach towards these two policy areas. Despite the existence of common aims, recent research from the European Commission underlines that the current transport system is not on a sustainable path. The Transport White Paper ‘Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system’ sets out a roadmap of forty initiatives for the next decade to work towards sustainability. The White Paper aims to build a competitive transport system that will increase mobility, remove major barriers in key areas and fuel growth and employment. At the same time, the proposals aim to dramatically reduce Europe's dependence on imported oil and cut carbon emissions in transport by 60% by 2050. At present transport is responsible for around a quarter of EU greenhouse gas emissions making it the second biggest greenhouse gas emitting sector after energy. Road transport alone contributes about one-fifth of the EU's total emissions of carbon dioxide (CO2), the main greenhouse gas. While emissions from other sectors are generally falling, those from transport have increased 36% since 1990.
At a global level “road safety” was recognised as a part of efforts within sustainable transport to reach sustainable development in the outcome document “The Future We Want” adopted by the UN Conference on Sustainable Development in June 2012.

Private vehicular travel and road freight transport are considered by far to be the most detrimental to the environment in terms of transport modes along with air travel. Environmentally sustainable transport aims to address the spread of car-dependent lifestyles focusing on public transport (supported by walking and cycling for access and short trips) as well as rail (and water based) freight transport. Car dependency results in more kilometres driven and more road risk while public transport offers the safest way to travel. The opportunity exists for further integration of these areas to capture latent benefits.

There are a number of overarching principles aimed at reducing the environmental impacts of transport that also underpin efforts to reduce the impacts in terms of road collisions and their outcomes.

- Reducing the need to travel
- Reducing the length of trips / distance travelled
- Promoting and encouraging the use of modes which perform better with respect to safety and environment (bus, rail)
- Encouraging and facilitating behavioral change (safer, more environmentally friendly)
- More efficient use of transport systems and infrastructure.

It is clear that policy and behavioural changes for addressing climate change and pressures on non-renewable resources offer the potential for stronger integration with road safety aims. Transport policy goals emphasise significant modal shift away from road transport for both people and goods while also increasing the efficiency of infrastructure use and co-modality. It is argued that such co-ordination has the potential to also offer significant road safety benefits in terms of collision reductions via a reduction in the volume of road transport and therefore exposure to risk.

# 5 Land-use planning and travel demand management

One area where environment and safety concerns can and should interact is in land-use planning and travel demand management. The EU's Transport White Paper stresses that "*Demand management and land-use planning can lower traffic volumes. Facilitating walking and cycling should become an integral part of urban mobility and infrastructure design*." The White Paper signals a change of approach to dealing with transport issues – from the traditional single-pronged approach of building more and more transport infrastructure to a more multi-faceted approach that also seeks to manage travel demand and make better and more efficient use of existing resources and new technologies.

Traditional road safety places a strong emphasis on reducing risk through vehicular improvements and road infrastructural improvements (as well as driver behaviour). However, such improvements can also result in increased kilometres travelled and volumes of traffic. The safety impact of such changes is given 'little or no consideration (Litman, 2012). Further research into this relationship is required and more consideration should be given to the safety impacts of changes in overall vehicle kilometres travelled precipitated by policy intervention. It could be argued that more emphasis should be placed on policy options that seek to reduce kilometres travelled and this approach should be strongly integrated into road

safety policy. It is important to recognise that both the numbers of people travelling and the overall distance travelled have an impact on road risk. Thus reducing travel demand has the potential to reduce road risk as well as contribute to more sustainable transport patterns. 'This approach contrasts markedly with the conventional engineering wisdom on the safety benefits of ''improving'' highway facilities and achieving higher standards of design (Nolan, 2003 in Murray et al., 2011).

Travel demand management and/or mobility management measures are becoming increasingly important in terms of contributing to tackling the environmental impacts of transport. Such measures seek to change travel behaviour (trip reduction, trip length reduction, reduction in vehicle use, increased travel by alternative modes etc.) rather than to provide more physical capacity for travel (road improvements, bus services etc.). Travel demand management can include land-use planning measures such as consolidating development, fiscal measures such as congestion charging and a range of other measures including school and work place travel planning, car sharing, teleworking, walking and cycling improvements. 'There is a strong case for mobility management strategies that reduce per capita vehicle travel (exposure) being of value in reducing overall crash risk (Murray et al., 2011).'

Transport is a demand derived from the location of homes, jobs, education, shopping and other land uses. As such, transport infrastructure and services cannot be supplied or transport demand managed in isolation from land-use planning. The interactions between land-use planning and road safety need to be considered as part of policymaking.

## 5.1 Walking and Cycling

Walking and cycling have zero emissions but there are implications for safety. The Transport White Paper recognises that: "in urban areas, walking and cycling, together with public transport, often provide better alternatives not only in terms of emissions, but also of speed [2]: They could readily substitute the large share of trips which cover less than 5km." The White Paper also states that "in addition to lowering greenhouse gas emissions, they bring major benefits in terms of better health, lower air pollution and noise emissions, less need for road space and lower energy use". They stress that "accordingly, facilitating walking and cycling should become an integral part of urban mobility and infrastructure design".

In EU countries deaths among pedestrians and cyclists decreased by 34% between 2001 and 2009 compared with 39% for car drivers (ETSC, 2011). The risk of being killed in traffic per kilometre travelled is more than 9 times higher for pedestrians than for car occupants and more than 7 times higher for cyclists than for car occupants (ETSC, 2003). The severity of injuries suffered by vulnerable road users is also higher than for car occupants. See ERSO web text on Pedestrians and Cyclists.

[2] The recent feasibility study for a central London cycle hire scheme considered that cycling is time competitive with all other modes over distances up to 8km. A web based quantitative study amongst both cyclists and non cyclists undertaken in 2006 also found that speed is perceived to be one of the main positive 'drivers' of cycling to work in Central London. Source: TfL, 2008, *Cycling in London*.

Non-motorised means of transport, such as cycling and walking, account for only a small share of distance travelled by road. However, they account for much larger proportions of journeys made and time spent using the roads. It is often claimed that cycling or walking should not be encouraged as they are less safe transport modes than cars. But research rejects this argument because the advantages of walking and cycling for public health (a healthy life through regular exercise) outweigh their disadvantages (the risk of death or injury). Walking and cycling should be encouraged as travel modes for citizens across the EU, and safety of walking and cycling should be one of the objectives of safety management. Furthermore, road safety engineering must not unduly hinder, and, wherever possible, should promote, the use of sustainable transport modes. 'The active transport modes deserve closer analysis in terms of how they can become part of road safety strategies, how their uptake can be facilitated, and what limitations typically apply (Murray et al., 2011).

**Kick Start Kirkwall: Health and Active Travel**

"Kick Start Kirkwall" was a campaign which aims to create a healthier, greener and more sustainable Kirkwall (Kick Start Kirkwall). Kirkwall is the capital of the Orkney Islands with a population of 8600. Most of Kirkwall's working residents live within three miles of their place of work, but 43% drive to work. The project was led by Orkney Islands Council and funded by the Scottish Government's Smarter Choices, Smarter Places Campaign and ran for three years 2009-2011. The three year project represented an investment of £1.28 million, of which more than £0.76 million will come from the Scottish Government. The Kick Start Kirkwall campaign included a number of projects, amongst others launching personalised Travel Planning to give local people in 3000 households information and support about the changes they could make towards walking and cycling more and generally becoming more active. Another part of the budget went towards improving infrastructure, path network links and footways around the town to make it easier to walk and cycle. The health sector also played a strong role in the project. For example through the National Health Service doctor referrals which were used for active travel opportunities where physical activity can improve someone's general health. The project resulted in over a third of those targeted changing their travel patterns to walk and cycle more and use their cars less

Source: Kick Start Kirkwall (2011).

## 5.2 Speed Management

There are clear synergies between fuel-efficiency, reducing CO2 and safe driving in terms of speed management policies. Continued action to tackle excessive speeding is required as it remains the single biggest contributory factor in fatal road collisions (ETSC, 2008). Speed management can be defined as a set of measures to limit the negative effects of illegal or inappropriate speed including credible speed limits, enforcement and education, and 'self explaining' and tailored roads and vehicles (OECD/ECMT and Aarts & Van Schagen, 2006). See ERSO Speeding and Speed Enforcement web texts.

In addition, the concern for safety is not the only reason why speed management is necessary. Speed management strategies are often consistent with other policy goals since speed plays a role in a number of transport indicators such as mobility demand, fuel consumption and CO2 emissions, air pollution, noise and congestion. The current concern over climate change and CO2 emissions has stirred convincing arguments for lowering speed limits and improving their enforcement (ETSC, 2008).

A World Health Organisation report identified speed management precisely as the policy option most likely to bring about synergies between concerns including collision reduction and climate change mitigation. According to Anable et al., (2006), lower or better enforced speed limits are 'one of the most certain, equitable, cost-effective and potentially popular routes to a lower carbon economy'

The importance of this interaction is recognised by the European Commission in the White Paper on transport which states that "reducing speed is an extremely effective way to reduce not only the risk of collisions but also fuel consumption," particularly as this approach enjoys the support of the European public. Despite this, speed management policies remain largely in the domain of road safety and are rarely translated into measures in the environmental sphere. The failure of integrating speed management policy into 'discussions about carbon abatement are probably because limiting speeds is mistakenly seen as a non-innovative or non-politically viable solution' (ETSC, 2008). Setting and enforcing lower speed limits would go some way to harness road safety and environmental benefits. It may be useful to consider an EU-level approach in terms of legislating for this.

An integrated and combined approach between road safety and environmental policy areas has significant potential for mutual benefits and more concrete action is required in this regard. The OECD estimates that at any one moment 50% of drivers exceed legal speed limits (OECD/ECMT, 2006). The extent of the behavioural change needed illustrates the urgency and indicates that regulatory may be the most sensible approach to tackle speed. Uniform maximum speed limits for Europe's roads could be a way forward, as is increased enforcement. Calculations have been undertaken showing that reducing average speeds across the EU by just 1km could save 2,200 lives every year (ETSC, 2008).

**France 'Plan Climat'**
In France, the Environment Ministry in its 'Plan Climat' (2004) concluded that the potential impact of full compliance with speed limits has been worked out at 2.1 million tonnes of CO2 for private cars, 0.4 million tonnes for heavy goods vehicles and 0.5 million tonnes for light utility vehicles, amounting to a total of 3 million tonnes of CO2 per annum. This is equivalent to a 2% CO2 emissions reduction. This is a high figure compared to other measures implemented by France (see figure 3 below). Unlike other measures it was not foreseen as something achievable over a long time horizon, but as something capable of offering immediate and gradually increasing reductions (thanks to France's efforts to increase compliance with speed limits) (ETSC, 2008).

| Measures | Reductions 2010 (Mt CO2.eq.) | Pilot | Horizon |
|---|---|---|---|
| Reduction in emissions relating to action on vehicle engine technology | 3.0 | Ministry of Transport | 2008 |
| Application of the directive on biofuels | 7.0 | MINEFI | Gradual up to 2010 |
| Clear information on energy consumption ( Energy Label) | 0.2 | Ministry of Transport | 2005 |
| Bonus/surcharge for vehicle purchase | 1 | MINEFI/Ministry of the Interior/MEDD | As soon as possible |
| **Compliance with speed limits** | **3.0** | **Ministry of Transport** | **Gradual since 2002** |
| Awareness of the effect of a less aggressive driving style as a topic in the driving test | 0.7 | Ministry of Transport | 2005 |
| Development of collective urban transport systems | 0.2 | Local municipalities | 2005 |
| Improvement in company logistics | 0.5 | ADEME | 2005 |
| Rail freight | | Ministry of Transport | Gains after 2010: 0.7 Mt |
| Hight speed train network | | Ministry of Transport | Gain after 2010: 0.6 Mt |
| Maritime Highways | 0.2 | Ministry of Transport | 2006 |
| Air transport | 0.5 | Ministry of Transport | 2007 |
| Reminder: Air conditioning | | | |
| **Total sustalnable transport** | **16.3** | | |

European Commission
Project co-financed by the European Commission Directorate General for Mobility & Transport

## 5.3 Eco-Driving and ISA

Eco-driving and in-vehicle systems that 'provide real-time information on prevailing speed limits' can further contribute to improving compliance with speed limits and, thus capture road safety and environmental benefits. If drivers behave in a more energy-efficient way, this also helps to improve the traffic flow, reduces fluctuations and the risk of congestion and traffic collisions (Schade & Rothengatter, 2011). The main arguments in favour of eco-driving within the professional driving context are a reduction of fuel costs, lower vehicle maintenances costs and vehicle wear and tear, reduction of CO2 emissions by around 8%, improved company image, reduced insurance costs (lower crash rates) and a reduction of stress and fatigue (Schade & Rothengatter, 2011).

While the White Paper on transport refers to the need to harmonise and deploy road safety technologies, the EU should have a stronger leadership role in promoting green and safe technologies especially Intelligent Speed Assistance Systems. ISA is a mature technology that has substantial safety benefits and potential to reduce the consequences of most severe crashes (fatal and serious injury). See ERSO **Speed and Speed Management** and **eSafety** web texts. Research shows that ISA can achieve It is also an effective instrument in mitigating climate change. Carsten et al. (2001) demonstrated that in the UK, CO2 emissions from cars using ISA could fall by 8% (Carsten & Tate, 2001).

Table 1: Expected road safety results from a range of ISA options

| | Advisory % reduction | Voluntary % reduction | Mandatory % reduction |
|---|---|---|---|
| Fatal crashes | 5% | 21% | 46% |
| Serious injury crashes | 3% | 14% | 34% |

Source: Carsten O (2012) Personal communication of additional results to study Lai F, Carsten O and Tate F, *How much benefit does Intelligent Speed Adaptation deliver: An analysis of its potential contribution to safety and environment*, Accident Analysis and Prevention 48 (2012) 63– 72

There is room for a more integrated approach between road safety and environment policy makers in terms of policies relating to speed and developing measures to apply them that can offer mutual benefits.

## 5.4 Vehicle characteristics: environment and safety

Measures to promote faster replacement of inefficient and polluting vehicles are key to tackling the environmental impacts of transport. Here there are synergies with road safety aims as older fleets tend to be less safe and modern vehicles include a larger range of safety technologies to help minimise risk. The production of lighter and less powerful vehicles could also do much to address concerns around fuel consumption. Many environmental programmes such as those incentivising low-GHG vehicle purchases and labelling the

consumption of new vehicles sold are likely to affect the average mass of vehicles (Luoma & Sivak, 2011).
Over the last 15 years the top speed and more importantly the acceleration capabilities of cars have increased significantly. Almost every new car sold today is capable of reaching or exceeding a speed of 130 km/h - the upper legal limit on virtually all of Europe's roads. The majority of new cars today can exceed 130 km/h by at least an additional 40 km/h. More importantly from a safety perspective, the ability of today's cars to accelerate rapidly to any speed the driver chooses leads to these capabilities being used. Thus for today's traffic conditions the majority of cars are greatly over-powered for the conditions in which they are actually used (ETSC, 2008). Limiting the top speed, acceleration ability and overall power of vehicles could also be considered as a means of addressing environmental concerns and could also reduce both numbers of road deaths and serious injuries. It's also possible within a professional context for fleet owners to adjust the fleet's performance and limit points such as top speed electronically. There is room for further integration between road safety and environmental policy areas in terms of vehicle design and characteristics including weight, mass, power, ergonomics. See ERSO web texts on Vehicle Safety, eSafety and Safety Ratings.

**Larger, Heavier Vehicles**

Such issues have recently come to the fore in the EU as part on an ongoing debate over Directive 96/53 governing the weights and sizes of lorries; the European Commission recently opened a consultation on the subject (European Commission, 2012). Longer and heavier vehicles (LHVs) are trucks typically measuring 25.25 metres in length and weighing up to 60 tonnes. Directive 96/53/EC allows Member States to use such vehicles at national level under the concept of the European Modular System (EMS) however, LHVs are not allowed to cross borders - revisions to this are being considered. The idea for increased us of LHVs is hotly contested by environmental groups who argue that facilitating their broader use will make road freight transport cheaper and more attractive to the detriment of more sustainable modes. There are also concerns in terms of road safety due to their size, weight, existence of larger blind spots and potential compatibility issues with existing road infrastructure (ETSC, 2010). 'But the review also offers an opportunity to make 'smart' changes to lorry sizes, i.e. to move to a 'smarter' (greener and safer) design of the lorry's cabin including aerodynamics (Transport and Environment, 2012).'

## 5.5 Electro-mobility

Electric vehicles represent part of the move away from fossil fuel-reliant transport and also offer transport that does not emit air pollutants and significantly reduces noise which results in marked benefits in terms of human health[3] improvements. Electric mobility is growing and

[3] It is a major cause, not only of hearing loss, but also of heart disease, learning problems in children and sleep disturbance.

such vehicles are likely to form a central part of future transport options. Within Europe, electrification of transport (electromobility) is a priority in the Community Research Programme. It also figures prominently in the European Economic Recovery Plan presented in November 2008, within the framework of the Green Car Initiative. Although the technology is relatively well developed the use of significant volumes of electric vehicles has not yet occurred in Europe and in this regard the potentials on road safety are not fully realised and here potential conflicts exist.

At low speeds electrically-powered cars provide a near-silent ride with some research showing that they are silent up to approximately 20km/h. When exceeding this speed level, noise emission remains low and is caused mainly by the sound of the tyres. In this regard there is concern that such vehicles cannot be easily perceived by particularly by pedestrians and cyclists, older road users and those with, for example, visual impairments. Other safety concerns include the increased mass of electric passenger cars, the high voltage and how this reacts during a collision and the potential for different driving behaviours amongst those driving electric vehicles. In order to minimise potential negative impacts future research into such areas is required. Furthermore, it would be prudent to monitor and analyse crashes in which electric vehicles are involved (SWOV, 2011).

Some moves are already being made to tackle the potential increased road risk proposed by almost silent vehicles. The Japanese government has drawn up a provisional norm for the requirements set to the sound level of electric vehicles up to 20 km/h. In Europe, acoustic warning systems and their possible standardisation are in the process of being developed as part of a proposed new regulation (European Commission, 2011/0409 (COD)) on motor vehicle noise however it is still being debated as to whether manufacturers should be obliged to fit such systems or if it should remain voluntary.

## 5.6 Fiscal Measures

Road User Charging

Recent research 'indicates that transport pricing reforms can significantly increase road traffic safety. However, these impacts are often overlooked, both when evaluating pricing reform benefits and when searching for road safety strategies (Litman, 2012).' The economic rationale for fiscal measures is that road users should pay directly for their trips, the service required to carry them out and the resulting associated costs including congestion, environmental damage and collisions. Therefore the transport system efficiency would be improved by aligning charges more closely with these costs. Aims also include changing road user behaviour and cutting greenhouse gas emissions.

Road user charging or '*Road Pricing*' means that motorists pay directly for driving on a particular roadway or in a particular area.' Road user charging is usually implemented as part of transport demand management packages alongside other demand management measures such as public transport enhancements. Road user charging can take many different forms including road tolls, cordon or area tolls, congestion charging or distance based charging. The impacts in terms of road safety are likely to vary depending on the form of road pricing introduced, its characteristics and the characteristics of the area in which it is

being applied. Such relationships are complex and it would be useful for more evidence based research to provide deeper understanding in this regard. Figure 4 provides a general summary the benefits of various pricing strategies, including on safety.

Pay as you Drive Insurance

Insurers are also keen to contribute to reducing the number and severity of collisions on the road, both as part of their commitment to social responsibility and of their efforts to lower claims rates (CEA, 2009). Clients can benefit from, reduced risk and in paying lower premium rates. By analysing claims data, insurers can identify groups of high-risk drivers and isolate the factors that contribute to their risk as a group. Where possible, they then tailor their products to address some of these factors. In some markets this is done by incentivising safer behaviour through initiatives such as no-claims discounts, discounts for driver training or telematics. Insurers can also influence safe vehicle choice by reducing insurance premiums linked to safety.

Pay-as-you-drive (PAYD) vehicle insurance is a 'new type of car insurance that ties the level of insurance premium to the risk level associated with driving behaviour of the policy holder. PAYD allows the direct administration of penalties for risky behaviour (e.g., speeding, driving during dangerous hours) and rewards for safe behaviour (e.g., keeping the speed limit). As such, it offers insurance companies a promising instrument for promoting driving at safe speeds and discouraging excessive speed violations.' A recent review of field tests focused on young drivers and tested the effects of PAYD on excess speed (driving above the posted speed limits). The experiment found 'that PAYD resulted in modest, but significant reductions in the speeding of young drivers.' The study also sets out practical guidelines for policy makers and insurance companies aiming to introduce PAYD schemes as a tool to reduce crash risk, improve traffic safety, and reduce the negative environmental impacts of car use (Bolderdijk & Steg).

*Figure 4 Road Pricing Benefits*

| *Strategy* | *Revenue Generation* | *Congestion Reduction* | *Pollution Reductions* | *Increased Safety* |
|---|---|---|---|---|
| Road toll (fixed rates) | 3 | 2 | 1 | 1 |
| Congestion pricing (time-variable) | 2 | 3 | 2 | 1 |
| HOT lanes | 1 | 2 | 1 | 0 |
| Cordon fees | 2 | 3 | 1 | 1 |
| Distance-based fees | 3 | 2 | 2 | 2 |
| Pay-As-You-Drive insurance | 0 | 2 | 2 | 3 |
| Road Space Rationing | 0 | 3 | 1 | 1 |

Source: Online TDM Dictionary, 2012

Note to Figure 4: Rating from 3 (very beneficial) to –3 (very harmful). A 0 indicates no impact or mixed impacts.

Congestion Charging

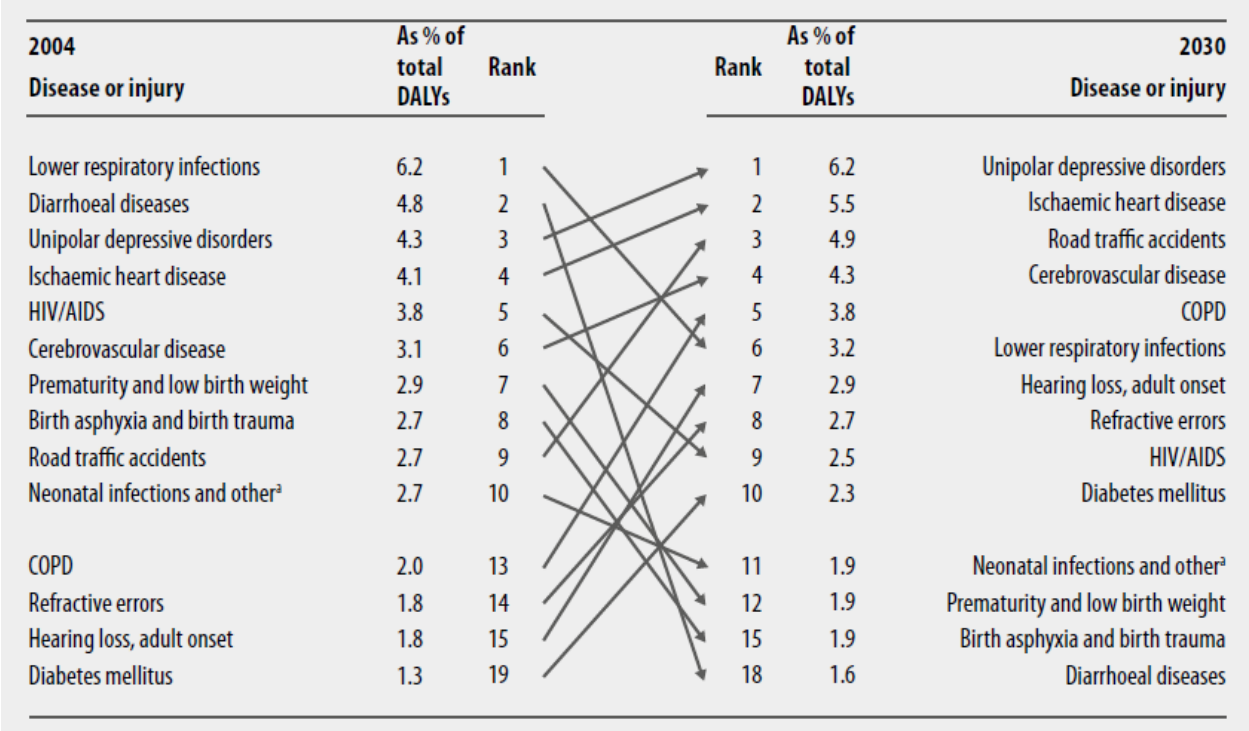
Recent examples include the Stockholm Trial (2005) which demonstrated a decline in the number of injury collisions as a result of congestion charging. In the scheme the evaluation of the impact on road safety was based on estimates and 'relationships between road safety and changes in vehicle kilometres travelled, traffic flows and speed levels.' Both personal injuries and traffic collisions and an analysis of factors that indirectly affect road safety were considered. 'The combined effect of the Stockholm Trial on road safety is assessed as positive, since the positive effects of reduced traffic are expected to be greater than the negative effects of increased speeds. A large percentage of the traffic crashes within the charge zone occur during the hours when the charge is imposed. A cautious estimate is that the Stockholm Trial has entailed a decline in the number of personal injury crashes of 5-10% within the congestion tax area (PIARC, 2012).'

# 6 Road safety as a public health issue

Road injuries and deaths need to be treated as a public health problem as well as a mobility issue. Internationally the public health dimension of the road safety problem was discussed as early as 1962, in a WHO report (Norman, 1962). In 1974, the World Health Assembly adopted a Resolution, declaring road traffic collisions a major public health issue and calling for Member States to address the problem. In 2004 the WHO and the World Bank jointly published the first "World report on Road Traffic Injury Prevention" (WHO, 2004). It also forcefully puts the case that road traffic collisions are a public health problem and that the resulting death and serious injury are avoidable and preventable. Looking at the area of health, three areas are identified within the context of integration: road safety and impact on death and serious injury on health strategies; alcohol; and the links to tackling obesity.

Figure 5 below shows that with the projected trend (business as usual) then road traffic injury is predicted to be one of the three main causes of death and injury in the world by 2030 (compared to 9$^{th}$ in 2004).

*Figure 5: Predicted causes of global death and injury by 2030*



| 2004 Disease or injury | As % of total DALYs | Rank | Rank | As % of total DALYs | 2030 Disease or injury |
|---|---|---|---|---|---|
| Lower respiratory infections | 6.2 | 1 | 1 | 6.2 | Unipolar depressive disorders |
| Diarrhoeal diseases | 4.8 | 2 | 2 | 5.5 | Ischaemic heart disease |
| Unipolar depressive disorders | 4.3 | 3 | 3 | 4.9 | Road traffic accidents |
| Ischaemic heart disease | 4.1 | 4 | 4 | 4.3 | Cerebrovascular disease |
| HIV/AIDS | 3.8 | 5 | 5 | 3.8 | COPD |
| Cerebrovascular disease | 3.1 | 6 | 6 | 3.2 | Lower respiratory infections |
| Prematurity and low birth weight | 2.9 | 7 | 7 | 2.9 | Hearing loss, adult onset |
| Birth asphyxia and birth trauma | 2.7 | 8 | 8 | 2.7 | Refractive errors |
| Road traffic accidents | 2.7 | 9 | 9 | 2.5 | HIV/AIDS |
| Neonatal infections and other[3] | 2.7 | 10 | 10 | 2.3 | Diabetes mellitus |
| COPD | 2.0 | 13 | 11 | 1.9 | Neonatal infections and other[3] |
| Refractive errors | 1.8 | 14 | 12 | 1.9 | Prematurity and low birth weight |
| Hearing loss, adult onset | 1.8 | 15 | 15 | 1.9 | Birth asphyxia and birth trauma |
| Diabetes mellitus | 1.3 | 19 | 18 | 1.6 | Diarrhoeal diseases |

Source: WHO, retrieved 2012

## 6.1 Engaging the health community in road safety

There already exists a strong tradition of medical and public health professional practice in initiating programmes for change within the area of road safety (Breen, 2004; ETSC, 2009). This represents a strong advantage in gaining support for bringing about change. The medical profession have acted as opinion leaders and encouraged politicians to promote legislation which introduced traffic safety measures in a number of Member States. For example, medical organisations have been particularly instrumental in convincing politicians about the merits of seat belts, child restraints and motorcycle safety helmets and about the need for vigorous enforcement of laws requiring their usage. The WHO proposed that the health sector takes on a more proactive role and brings road traffic injuries back into its core business. The EU health policymakers should take a similar approach.

At a European level, the EU regularly adopts health strategies, the most recent being 'Together for Health- A Strategic Approach for the EU 2008-2013'. This current strategy includes four main principles: shared health values, links between health and economic prosperity, strengthening the EU's voice in global health; and 'integration'. According to the

EU Treaty, the EC is required to make sure that a high level of health protection is ensured in 'the definition and implementation of all Community Policies and Activities (European Commission, 2007)**.** Transport policy is not listed as one of the key priorities. However it is mentioned briefly within the context of tackling obesity and the need to promote physical activity. The strategy has three strategic objectives: good health in ageing Europe, protecting people from health threats and supporting dynamic health systems and new technologies. However the need to include road traffic deaths or serious injuries has been overlooked in this strategy. One road safety issue, namely the safety of vulnerable road users, is identified as a priority for action in a 2007 Recommendation adopted by Member State governments on the prevention of injury and promotion of safety (Council Recommendation, 2007). Clearly there is a need for the EU to communicate the benefits of countermeasures in reducing road risk in terms of public health and cost savings to the European citizens in the next EU Health Strategy. Road safety needs to be integrated into the EU Health Strategy.

From the transport perspective, the European Commission's Directorate General (DG) MOVE has an objective within the "Road Safety Policy Orientations" to "improving emergency and post injury services". The EC notes that road injuries "have been recognised as a major public health concern at international level, in particular by the World Health Organization and in the framework of the UN Decade of Action for road safety (European Commission, 2010)." Here, the European Commission proposes that different actions are needed to target serious injury including for example on the safety of the vehicle and of infrastructure, ITS, the availability of emergency aid, the speed and coordination of intervention, the efficiency of first aid and rehabilitation (European Commission, 2010). The "Policy Orientations" commit to preparing a "global strategy of action to tackle serious injury and first aid (European Commission, 2010)." The EC stress the need to make progess on anEU common definition for serious injury and launched a public consultation in April 2012. on the development of a serious injury strategy (European Commission, 2012).

**England: Health Strategy Include Road Safety Indicators**

In England the government has decided to include the indicator 'Killed or seriously injured casualties on England's roads' for the objective 'Improving the wider determinants of health' in *A public health outcomes framework for England, 2013 – 2016* (Department of Health, 2012*)*. In addition, an indicator on 'Hospital admissions caused by unintentional and deliberate injuries in under 18' draws attention to younger road users. Although this inclusion is fortunate, this comes about against the background of the lack of a numerical objective in the *Strategic Framework for Road Safety*, published in May 2011. The integration of road safety into health policy is also mirrored at a local level. In a survey of local authorities it was also found that road safety officers were being encouraged to work more with colleagues in public health (PACTS, 2012). These connections will be particularly important as public health becomes more localised and whilst working towards the road safety indicators in *A public health outcomes framework for England, 2013 – 2016.*

## 6.2 The costs of road traffic deaths and injuries

There is a strong business case to include the prevention of road traffic deaths and serious injury on the health agenda. When it comes to calculating costs, the recent EU Transport White Paper recognises that the social costs of road collisions will rise in the future. The increase in traffic would lead to an external cost of collisions of 60 billion Euro higher by 2050. Recent estimates undertaken by ETSC state that if no one had been killed nor seriously injured in 2010, the benefits to society would have been of the order of 105 billion euro (ETSC, 2011). These estimates illustrate the continuing social and economic importance of working to reduce collisions, injuries and deaths on EU roads. See ERSO web text on Cost-benefit analysis.

In addition to the 31,000 people killed in road collisions in the European Union in 2010, about 1,700,000 people are recorded as injured in police records each year, among them 300,000 seriously. Road deaths represent only the "tip of the iceberg" of traffic collisions. For every road death in the EU, at least 44 road injuries are recorded, of which 8 are categorised as "serious". For example in Ireland, most patients with road traffic collision-related injuries are young males with traumatic brain injuries, traumatic spinal cord injuries and traumatic limb amputations. Of those with traumatic injuries, only approximately 10% will return to work, which has a devastating effect on the person and their extended family (ETSC, 2010). Involvement in road collisions is one of the leading causes of death and hospital admission for EU citizens under 45 years of age. Today, thanks to a range of intervention implemented but notably more protective vehicles and roadsides, more speed management, better emergency response and medical progress, many deaths are prevented but the survivors remain and many are seriously injured. See ERSO text on Vehicle Safety, .Safety Ratings, Roads, Speeding and Post Impact Care.
European and national decision makers from both the health and transport should not neglect this less-publicised contribution to the costs of serious health loss.

## 6.3 Alcohol and health

One major issue concerning health and road safety is alcohol. Europe is the heaviest drinking region in the world, with a prevalence of heavy episodic drinking in excess of one fifth of the adult population (WHO report, 2010). This represents a major challenge to health, not least as driving whilst impaired represents one of the largest road safety challenges resulting in death and serious injury. Drinking and driving is often a sign of an alcohol problem. Thus, by treating drinking and driving one can also treat the broader problem and vice versa. Differences among countries have to be taken into consideration but the European average is 9.24 litres of pure alcohol consumed per year. Data from the latest WHO Report on Alcohol and Health 2010 show that countries such as Malta, Norway and Sweden have a low level of alcohol consumption compared to Estonia, Czech Republic and Ireland (WHO report, 2010). The European Commission estimates that across the EU at least 25% of all road deaths are alcohol related against 11.5% according to official statistics (ETSC, 2010). See ERSO text on Alcohol.

## 6.4 EU policy on alcohol, health and drinking and driving

The Road Safety "Policy Orientations" of the European Commission mentions drinking and driving, though it is not cited as a key priority. The strategy places an emphasis on enforcement of road user' behaviour, including drinking driving and the need to match strong penalties for drinking and driving with preventative measures. The Commission also expressed a commitment to: "examine to what extent measures are appropriate for making the installation of alcolock (alcohol ignition interlock) devices in vehicles compulsory, for example with respect to professional transport (e.g. school buses)" and to look at the possibility of making use of alcolock devices mandatory in certain specific cases within the context of a new common road safety enforcement strategy. In an accompanying memo the Commission also states that it would consider legislative measures to require mandatory use of alcohol interlocks for specific professional cases, such as school buses, or in the framework of rehabilitation programmes (for professional and non-professional drivers) after exces alcohol offences.

Drinking and driving features also within the EU's strategy on reducing alcohol related harm from DG Health and Consumers (European Commission, 2006). The priorities identified in the Communication include "reducing injuries and deaths from alcohol-related road accidents". Concerning drinking and driving, the Strategy recommends introducing maximum BAC limits according to the above mentioned Recommendation (0,5 g/l and 0,2 g/l for professional and novice drivers). Moreover, DG Health and Consumers highlights the importance of effective enforcement of drinking and driving laws in order to substantially reduce road deaths. Thus, it recommends the introduction and enforcement of frequent and systematic random breath testing, supported by education and awareness campaigns involving all stakeholders. In the framework of the EU strategy there is also a Forum to tackle alcohol-related harm involving the Commission, businesses and NGOs (EU Alcohol and Health Forum).

## 6.5 Alcolocks as a tool for managing health

Alcolocks are an effective countermeasure to reduce drinking and driving. The alcolocks technology connects to the vehicle ignition system and requires the driver to take a breath test in order to start the car. If the driver is found with alcohol above the legal BAC limit the engine will not start. See ERSO web text on eSafety, Alcohol for more information**.** In many EU countries, technology is used on a voluntary basis in vehicles which are used for the transport of goods or passengers. The alcohol interlock is used as a quality assurance tool to comply with a company's alcohol and drugs policy. More and more countries in Europe are adopting legislation for the use of alcolocks in rehabilitation programmes for first high-level offenders and recidivists as a substitute punishment of driving licence withdrawal (ETSC, 2012).

As drinking and driving is often a precursor of alcohol problems, tackling it within a rehabilitation programme can lead to wider health benefits. One study has compared the costs of hospital care and sick leave/disability pensions between two groups of drinking and driving offenders (Bjerre, B. et al.,2 007), Offenders who participated in an alcohol interlock programme and a second group of offenders whose licences were revoked were compared. The participants in the alcohol interlock programme received regular medical checkups and those who did not change their alcohol habits were dismissed from the programme. The cost savings from this programme were substantial. Average health care costs were 25% lower among participants of the alcohol interlock programme during the 2 year programme with savings increasing for those who completed the 2 year programme to 37% during the treatment and 20% during the post-treatment period. Positive health care effects were due to reduced alcohol consumption. The rate of individuals with harmful alcohol consumption after 12 months in the programme had been reduced to 14% compared to 68% at the start. This is an interesting example of how a road safety rehabilitation measure can also have positive health effects and financial savings for the health sector.

## 6.6 Road safety, health and mobility patterns

Another inter-related area of overlap between road safety and health is the increase of active transport modes. Active travel includes walking and cycling with a shift away from motorised transport with the aim of reversing the declining trend in physical activity. Action on obesity is included in the EU's Health Strategy. Physical inactivity can also lead to other health problems such as diabetes. The European Commission's Health Strategy also points out the links to active transport and the need to promote physical exercise to tackle obesity. Based on the latest estimates in EU countries, overweight affects 30-70% and obesity affects 10-30% of adults. Country estimates of 2008 revealed that approximately 35% of all people in the WHO European Region are insufficiently physically active. The EU has a strategy on Nutrition, Overweight and Obesity which also highlights the need to promote physical exercise including active commuting. Studies from the UK and the USA already show that obesity reduces life expectancy and the impact may become greater in future given the increase in childhood obesity. As mentioned previously there are road injury risks associated with active transport such as walking and cycling. However the public health benefits of active transport are stronger then the road injury risks incurred. For individuals who shift from car to bicycle, it is estimated that beneficial effects of increased physical activity are substantially larger (3-14 months gained) than the potential mortality effect of increased inhaled air pollution doses (0.8-40 days lost) and the increase in traffic crashes (5-9 days lost). Encouraging cycling and walking to work can also be part of workplace health promotion covered previously.

**Liverpool – Public health budget invested in 20mph zones**

In Liverpool, the local National Health Service (NHS) trust will invest £665,000 over four years to implement and study an extension of the city's 20mph limits to a majority of streets (Liverpool NHS, 2012). One of the aims is to improve road safety says a local Liverpool City Councillor: “This is a really important project, which we believe will bring massive benefits to our city. It will make our roads safer, potentially saving hundreds of lives, and it could present a saving to society of over £5million a year”. As well as providing road safety improvements, the plans would also bring benefits to local people’s health, through the promotion of safe walking and cycling.

The majority of pedestrian impacts in Liverpool occur in built-up areas, and hospital admissions caused by road traffic injuries are higher in more deprived areas of the city. From 2013, local authorities who are responsible for road safety, will take on larger responsibilities for public health in England. The idea is that lowering road speeds may cut the NHS bill for treating crash victims, and also combat obesity by encouraging more walking and cycling. Due to the increased health benefits of walking and cycling, public health funds could be invested in providing safe walking and cycling infrastructure such as in the presented cases. Every transport and land use decision could include a ‘health check’ which would entail looking at the potential impact on levels of walking and cycling and other aspects of health including road safety and air pollution (Sustrans, 2010).

## 6.7 Safer at what price? The issue of mobility

Concerns over children’s safety and security have contributed to the increase in the number of parents using cars to take their children to school. By driving cars to school, traffic increases, which reduces pedestrian and cyclist child safety and the quality of life of children. (European Environment Agency, 2008). The health of children, increased socialisation and a way to tackling child obesity are arguments in favour of walking and cycling to school. This would also increase children’s appreciation of road dangers and further assists in the development of key skills which are important for future independence (Cairns et al., 2004b). In many countries, child casualties are decreasing mainly due to reduced exposure to risk as they are driven to school and spend less time out on the streets playing. There are many benenfits in promoting cycling and walking but of course these activities need to be made safe.

Safe routes to schools

Safe routes to schools programmes aim at encouraging and enabling more children to walk and cycle to school safely. Implemented in numerous countries and cities, these community-based road safety programmes usually involve school jurisdictions, teachers, pupils, parents, local police, the municipality and local road operators.

For example, the safe route to school programme of the Barcelona City Council involves the school community, the Municipal Institute of Education (IMEB), the Guardia Urbana and the City Council's Department of Mobility. All actors involved regularly meet to analyse the situation and decide upon next actions (traffic calming measures, extension of 30 km/h limits, infrastructure improvements, etc.). The safe routes to school programme in Riga also gathered recommendations about how to teach traffic rules and guidelines for teaching staff and produced a traffic safety handbook with the help of EU funding.

# 7 Creating a market for safety

Including the safety performance of vehicles in purchasing criteria has dual advantages for both the producer through business and for the buyer in terms of increased safety. Vehicles have a critical role to play in improving road safety and choices in this regard offer opportunities. The EU has a role to play in developing a 'market for safety'. This can be understood as choosing safety in vehicle procurement and in-house safe travel policies.

Vehicle passive safety has improved considerably over the past decade due in part to increased minimum standards laid down by EU type approval regulations and also by car manufacturers' efforts to meet consumer demands for safer cars. Improved vehicle safety has made a large contribution to casualty reduction. See ERSO web texts on Vehicle Safety and eSafety.

However, EU citizens do not benefit equally from these improvements. Safety levels of new cars sold are notably lower in some European countries than others. According to the European car manufacturers association (ACEA), the average age of cars is 8 years in the EU-15 and up to 15 years in Latvia, 11 years in Slovakia and down to 7 years in the UK (ACEA, 2010). To date, no specific studies have been carried out to identify the causes of the differences in safety levels of average new cars sold in different countries, but they are likely to follow from a combination of factors. These include differences in national market characteristics such as purchasing power, tax levels, availability of models, or cultural and mobility patterns. Consolidating the internal market for safety will have to be an important cornerstone of achieving the new EU's 2020 road safety target.

The EU has the reputation as the home of the safest vehicles now and in the future. It should continue to aim high and raise the EU common minimum standards on safety and prioritise proven life-saving technologies. See ERSO web texts on Vehicle Safety**,** Safety Ratings and eSafety.
All cars produced in the EU or imported into the EU have first to meet EU common minimum standards laid down by EU whole vehicle type approval regulations. Those regulations cover general safety of vehicles, availability of seat belts and head restraints, tyres, pedestrian protection, side and frontal impact protection). See ERSO Vehicle Safety text for information on these processes.

Robust in-vehicle safety technologies need to be mandated in new legislation (as has been the case for ESC) to prevent safety technologies being sold as standard in one EU country and not in another. For all other safety equipment, the EU needs to promote their standard fitment across the EU and address the differences observed in safety levels. Demonstration activities and wider support are needed to promote consumer demand and reduce production costs.

## 7.1 Guiding choice of vehicles: Euro NCAP

Influencing consumer chouce in favour of purchasing safe cars and safety technologies is an important element of road safety. The European New Car Assessment Programme (Euro NCAP) (www.euroncap.org) tests the crashworthiness of new cars with respect to front and side impacts, pedestrian and child safety and rewards (or plans to) the installation of key safety equipment and driver assistance technologies. Research shows that the risk of severe or fatal injuries is reduced by approximately 12% for each Euro NCAP star rating (Lie and Tingvall, 2002). When Euro NCAP started to test the crash performance of cars some fifteen years ago, the average car was awarded 2 stars for occupant protection. Now almost all cars tested are awarded 5 stars for combined occupant and pedestrian protection. This is a prime example of how a consumer information programme can raise standards in an area in this case safety and contribute to building a “market for safety”.

## 7.2 Large purchasing power: procurement

Non-private sector customers, such as governmental bodies and local authorities can through their public procurement policies play an important role by including specific requirements on minimum safety levels in their vehicle purchase and leasing policies. Each year European public authorities spend the equivalent of 16% of the EU Gross Domestic Product in total on procurement. This includes a number of different items amongst others transport vehicles and transport services (European Commission, 2008). The EU action seeks to create a European area for public procurement in the context of the internal market. Directive 2004/17/EC has been adopted which includes criteria for green public procurement. Here the rationale is that: “public procurement can shape production and consumption trends and a significant demand from public authorities for "greener" goods will create or enlarge markets for environmentally friendly products and services”. Also that: “by doing so, it will provide incentives for companies to develop environmental technologies (European Commission, 2008).” Green public procurement can be a major driver for innovation, providing industry with real incentives for developing green products and services – particularly in sectors where public purchasers represent a large share of the market (e.g. construction, health services, or public transport) (European Commission, 2011). If this legislation were to be updated to include safety, this would result in road safety improvements as well as promoting innovation in the area of safety technology and vehicle standards. Government fleets also make up large percentages of vehicle purchases and journeys. Thus the purchasers of these cars can have large bargaining power when it comes to including certain criteria such as safety as well as leading by example. See also ERSO texts on Road Safety Management and Work-related road safety.

**Swedish Transport Administration's safety requirements for vehicles**

The Swedish Transport Administration, a government body, is leading the way in terms of improving vehicle safety by passing a law (Swedish Government Decree, 2009:1) setting high vehicle requirement standards for government fleets. Recommended minimum traffic safety requirements have been developed, not only for government owned vehicles but also for lease vehicles, short-term rental vehicles and private vehicles used for work purposes. The legislation, passed in 2009, requires all government bodies to buy or rent only 5-star Euro NCAP cars for occupant protection (this "government specification" also refers to environment standards). The levels of safety requirements increase with length of time a vehicle is used for. It is recognised that the highest Euro NCAP standards should be aimed for and that this is a moving target with room for continual technological improvements. Due to the requirement to hire only 5-star Euro NCAP cars for occupant protection, this has had another overspill effect as rental companies, such as Hertz, Avis and Europcar, are upgrading their whole fleet to offer 'STA recommended cars' to all their customers (ETSC, 2010).

In the private sector, companies can also include safety in their vehicle purchasing criteria. In doing so, companies contribute to the market penetration of safer cars by supporting the demand for such vehicles and for safety technologies and helping to lower the price of safety technologies. Company car registrations account for 50.5% of the 11.6 million passenger cars registered across 18 EU Member States in 2008[4]. Indeed, private sector actions can help protect not only professional drivers but all road users. Innovations in vehicle safety equipment are developed and hit the markets at a very fast pace (sometimes much faster than the time it takes to legislate on their use) and improving the safety of fleet vehicles is most often the quickest route to ensure that vehicles are fitted with such innovations. There is a relatively quick turnover of fleet vehicles, which ensures that these safety features can soon be passed on to private vehicle drivers (Haworth et al., 2000). Large fleet operating organisations can literally influence the market by using their strong purchasing/consumer power and dictate what sort of vehicles and equipment hit the market. For example, in the UK Ford changed their Transit van to meet some requirements of one of their big customers: British Telecom. The vehicle industry has already started responding by marketing vehicles such as the "safety van" which includes the latest safety features in their state of art vehicles (Mercedes Benz, 2012). This is another example of a useful synergy that has come about as a result of integrating safety into, in this case purchasing policies.

[4] However, the share of company cars in total registrations varies between countries. It is lowest in Greece (24%), highest in Germany (60%).

## 7.3 Integrating safety in the supply chain

Including safety in public and private procurement can be extended beyond vehicle safety to include safety as a criterion for contracts which can have further safety benefits. By integrating this requirement, benefits also include saving time and becoming more efficient. Large employers either public or private can influence policies in Small and Medium Enterprises (SMEs) when they sub-contract out work further along the supply chain by insisting that subcontractors adopt the same conditions and standards in relation to driving for work (ETSC, 2010). Large employers can be encouraged to share their good practice with smaller companies who may not have the facility of human resource management found in many larger companies (ETSC, 2011). Liability responsibility and appropriate risk management and preventative measures can be extended through the supply chain (ETSC, 2011). See ERSO web text on Work-related road safety.

**The Systole tender tool**

In Sweden, in 2008 five major buyers of transport and the Swedish Road Administration, developed a tender tool called 'Systole' that provides a meeting place for goods owners and transportation companies that value sustainability and safety. This provides for ongoing dialogue during contracts and allows hauliers to support the company with solutions. The tool allows for the 'live' evaluation of hauliers and for communication of long term requirements. The goal orientation safety requirements includes for example one of the key road risk factors "speed" as specific criteria and gives it the highest priority. The goal is that 'speed should be adapted to prevailing circumstances and never exceed the relevant regulations.' To achieve this goal 7 requirements are set out which include developing procedures for planning and scheduling that take into account speed limits and traffic conditions, developing procedures for monitoring and reporting on this, having technical support for keeping to the speed limit on all vehicles and for follow-ups of excess speed on vehicles (PREEM, 2010).

**ISO International Standard 39001 Road Traffic Safety Management System**

A new ISO international standard 39001 for road safety management, published in October 2012 will provide a useful framework for continual improvement in road safety. This new ISO Standard adopts the *Safe System* approach and a similar process approach to other existing ISO Standard on environment management systems 14001. It can be adopted by a public authority or company but it can also be used to cover transport services contracted in the supply chain. Any player with an influence on road safety should be able to use the standard as guidance in its efforts of contributing to safe road traffic. ISO management systems are based on the Plan-Do-Check-Act methodology which is a cyclical approach involving several steps and requires strong leadership and commitment from top management (ISO International Standard ISO 39001, 2012). A management system is defined as "a set of integrated or interacting elements of an organisation to establish policies and objectives and processes to achieve those objectives (ISO International Standard ISO 39001, 2012)."

# 8 EU Global Trading Block

The EU is the world's largest producer of motor vehicles with a 25% share of global production (European Commission, retrieved, 2012). Global production of vehicles is broadly shared between Europe, the Asia-Pacific region and North America. The European automotive industry[5] is a key sector for the European economy, providing a contribution to the EU trade balance of around €70 billion (CARS 21, 2011, Interim Report). It is an important source of employment in the European economy, providing over 12 million jobs (CARS 21, 2011, Interim Report). It directly employs over 2 million people, and indirectly supports about 10 million jobs in other industries. The health of the sector affects roughly 8% of the EU's active workforce (European Commission, retrieved 2012). EU exports of motor cars reached €76 billion in 2010, with a 58% increase over 2009 (CARS 21, 2012, Final Report). Total automotive exports (including also buses, trucks, components, etc.) represent about 10% of the value of total EU exports. Total EU automotives exports in 2010 totalled €132 billion with imports at €47 billion (CARS 21, 2012, Final Report). The main five regions vis-à-vis which the EU has a surplus are the NAFTA and EFTA countries, China, the Russian Federation and the Middle East. The European vehicle industry faces a number of problems within Europe with mature markets and an economic crisis. The EU market for new passenger cars declined by 5.5% in 2010 (13.3 million units registered), due to the ending of government fleet renewal schemes in many EU countries (European Commission, retrieved 2012). Even so it represents a home market of 500 million consumers with a relatively high-income. While the European market has a low-growth perspective, third markets are growing fast with the global economic recovery, changing the trade flows and the automotive value chain (CARS 21, 2011, Interim Report).

The long-term global outlook for the automotive industry is promising: world-wide new car sales, for example, are projected to increase by more than 10% in 2020, when compared to 2008, mainly as a result of the motorisation of emerging markets (CARS 21, 2011, Interim Report). Free Trade Agreements to improve market access in third countries are increasingly important as the economic value of these markets for the competitiveness of the EU automotive industry increases. It is important here to safeguard safety within the trade negotiations governing both imports and exports to Europe. However, it is not yet clear to what extent the growth in such emerging markets will be addressed primarily by European exports or by production established through foreign direct investment into the new markets. Beating off the international competition will be a challenge but the automotive industry can further develop its safety credentials. It can demonstrate global technological leadership by profiling itself as the producers of the world's safest vehicles and placing itself at the forefront of cutting edge technology.

Car industry policies increasingly promote safety as a marketable commodity (ERSO, 2007). Volvo was the first to adopt Vision Zero that no one should be killed in a Volvo. This was later changed to include external road users so that no one should be killed either in or by a Volvo

[5] Here the term automotive industry, is meant to cover the entire supply chain, covering vehicle manufacturers, suppliers, distribution and after-market services.

and included the target date of 2020 (Volvo Car, 2008). Toyota has also adopted a Vision 0 and is aiming: “for the complete elimination of traffic deaths and injuries (Toyota, 2009) ”but has not set a target date. Another example comes from Nissan who as far back in 2004 adopted a Vision Zero, more precisely that: “the goal of which is to reduce the number of fatal accidents to zero.” Toyota use as a baseline, the number of such crashes in 1995 that involved Nissan vehicles and have set a series of milestones, including cutting the 1995 fatal accident figure in half by 2015 (Nissan, 2004). These examples further show that some vehicle manufacturers see safety as important as well as acknowledging that consumers rate it highly when purchasing a new car.

**Exporting the Vision Zero for safety and for trade**

The Vision Zero Initiative is a network of Swedish companies and organizations, which was founded on the initiative of the Swedish Government and Swedish industry in 2010. The Vision Zero Initiative (Vision Zero Initiative) is administered by The Swedish Trade Council, with offices in more than 60 countries. The role of the Vision Zero Academy is to generate knowledge-based policy advice for stakeholders in different countries on innovation and implementation of traffic safety management systems, services and technologies. Located in Gothenburg, the Vision Zero Academy also focuses on professional training, research and development, traffic safety management and safety performance factors. This is an example of a country actively exporting not only safe vehicles but the entire concept of safety which for Sweden is *Vision Zero* and defined as: “No one should die or suffer serious injury in traffic. We place the main burden for safety on system design because we recognise human weaknesses and low tolerance to mechanical force (Vision Zero Initiative concept).” The *Vision Zero* was first conceived in 1994 and in 1997 the Parliament passed a Road Traffic Safety Bill that incorporated the *Vision Zero* into Swedish law. Since then, the Swedish Trade Council together with its partners have taken this message around the world as part of an effort to “export” vision zero together with the business and trade opportunities it offers to Swedish companies abroad. A starting point was to organise high-level workshops to create a political base in selected countries. For example in November 2010 a 3 day business seminar was organized in Malaysia with the aim of providing the Swedish industry access to interesting business opportunities in Southeast Asia and to give decision makers in the region access to the latest technology with the field of road safety (Vision Zero Initiative, News Events).

# 9 Research, development and safety

The EU is seen as a centre of excellence and innovation in research and development in the area of vehicle safety. Effective vehicle safety design relies upon continuing research and development, understanding of the source and mechanisms of injury protection in a range of crash conditions, regular monitoring of performance in real world conditions, and confirmation that new technologies are used and accepted. See ERSO web text on Vehicle Safety. Research and development is supported by the spending from public authorities: regions, Member States and the EU. Road safety research should continue to benefit from this public funding. There is a strong need to ensure the dissemination of knowledge about successful measures and research results among decision-makers and practitioners. At present the automotive industry itself is a key driver of knowledge and innovation. It represents Europe's largest private investor in research and development. The EU automotive industry was the biggest investor in R&D in 2009 (€28bn/year), followed by Japan and the US, making the sector the largest private Research and Development investor in absolute terms (CARS 21, 2011). Taking into account the importance of the sector for the EU economy, research and development of safety topics should continue as this investment sustains this important competitive advantage. See See ERSO web text on Vehicle Safety.

# 10 Roads policing: road safety and fighting crime

Enforcement is a means to prevent the occurrence of collisions by means of persuading drivers to comply with the safety rules. In addition, it can also help to reach other law and order aims. Effective road safety enforcement is based on giving drivers the feeling that they run too high a risk of being caught when breaking the rules and leads to a rapid reduction in deaths and injuries. Moreover, sustained intensive enforcement that is well explained and publicised also has a long-lasting effect on driver behaviour. Undertaking enforcement work can also work to deter and detect criminal activities. “Denying the criminals the use of the road” is a phrase first coined in the UK but has now been used in other Member States. Most criminals need to use the road and through a proactive roads policing , police presence can deter criminality and also uncover it during other traffic law checks. One recent Europe wide TISPOL week-long seat belt check during March 2012 resulted in 125,000 seat belt offences but also uncovered 3,256 criminal offences including fire arms, stolen goods, drugs, illegal immigration and for human trafficking (TISPOL, 2012). See ERSO text on Speed Enforcement.

At EU level, there has been progress in this area in the past decade. In November 2011 legislation was adopted by the EU to enforce traffic laws across Europe. This new EU Directive builds on previous action in this area. In 2004, European Commission adopted a Recommendation on Enforcement in the field of road safety (European Commission, 2004).

In which Member States are asked to apply best practice in a national enforcement plan in the enforcement of speed, alcohol and seat belt legislation. The European Commission Road Safety Policy Orientations include an objective on enforcement and foresee the development of a road safety enforcement strategy. On the Justice side, in 2008 the Police Co-operation Working Party adopted Council Conclusions on road safety (Council of the European Union, 2008). They affirmed their commitment to reducing road traffic deaths on Europe's roads and identified some common areas of action such as promoting exchanges between national contact points and combating trans-national illegal races of motor vehicles on European public roads. This would be carried out on the basis of gathered intelligence and improved mechanisms for operational police coordination. Special meetings to discuss road safety amongst the Law Enforcement Council Working Group[6] are ongoing.

TISPOL, the European Traffic Police Network Organisation has been established by the traffic police forces of Europe in order to improve road safety and law enforcement on the roads of Europe. Their main priority is to reduce the number of people being killed and seriously injured on Europe's roads. "Enforcement of traffic law and education, where appropriate, will make a significant contribution to reducing the carnage on our roads. This is evident in a number of TISPOL member countries (TISPOL, retrieved 2012)." Since their creation in 2000 their activities have expanded to cover roads policing aimed at reducing crime on the roads such as illegal immigration, human trafficking, drugs, transport of stolen goods and so on. They cite strong evidence that those engaged in criminal activities are involved in fatal and serious injury crashes (TISPOL, 2011).

**New Roads Policing Strategy – England and Wales**

In 2011, the Association of Chief Police Officers adopted its new Roads Policing Strategy for England and Wales. This included a continued emphasis on reaching two aims: safer roads and combating crime. "Proactive road policing can deny criminals the unchallenged use of the roads, and is an effective measure for preventing and detecting crime (ACPO, 2011)." It includes a section on terrorism stating that: "The roadside encounter presents essential intelligence gathering opportunities and the potential for stopping and disrupting terrorist activity by road policing officers (ACPO, 2011)."

[6] The Police Co-operation Working Party was renamed after the Lisbon Treaty to the Law Enforcement Working Party.

**Mass Breath Testing in Finland**

Enforcement of breath testing can be undertaken in a way whereby all drivers passing through a check point are breathalysed. This type of screening can include the detection of other non-road safety offence related activities. In Finland, so-called blanket testing was introduced in 1977 whereby a whole road is blocked off and everyone is tested.

Communication with the media and publicising the results of the activities are an integral part of this traffic control. The main aim is to vary time and place and ensure that drivers are aware that they may be tested anytime or anywhere. The number of roadside police checks for alcohol per 1000 inhabitants is the highest in Finland, where no less than 385, drivers per 1,000 population were checked in 2008 (ETSC, 2011). Just as with other mass checks these sometimes uncover other criminal activity.

# 11 Liveable cities: urban mobility and the sustainable modes

Transport safety is an essential component of sustainable urban mobility and should be firmly integrated into the mobility planning processes by cities. In attempting to secure change in urban mobility patterns, road safety can be regarded as a critical challenge, largely because of the social and economic cost of road collisions. As such, safety should be tackled at all levels of mobility planning. Real and perceived safety can have a profound effect on modal choice especially in terms of the most sustainable modes of travel - walking and cycling and ability to access public transport. At EU level the Transport White Paper includes Urban Mobility Plans within its list of initiatives. Addressing urban transport at this level is a relatively recent development. Safety should be integrated not only into the development of Urban Mobility Plans but into proposed Urban Mobility Audits and Guidelines and be reflected in common targets.

In developing policies a useful approach may be to adopt a clear hierarchy of transport users, with pedestrians, cyclists and public transport users at the top of the hierarchy. As a general principle, these users should have their safety and convenience needs considered first. It is most important that the hierarchy is applied where a large share of travel is (or could be) made by walking, cycling and public transport. A higher share of travel by collective transport, combined with minimum service obligations, will allow increasing the density and frequency of service, thereby generating a virtuous circle for public transport modes. This is in fact another important synergy across the environmental and road safety policy areas. While collective transport minimizes negative environmental effects, the core public transport modes (bus and rail) are the safest modes of transport. Trips by public transport, including walking or cycling to and from access points are collectively safer than car trips ETSC, 2003). See ERSO text on Roads, Speeding and Pedestrians and Cyclists.

**30 km/h in Graz**

The introduction of 30km/h zones in cities has had multiple benefits. For safety it reduces speeds and thus increases the safety of vulnerable road users and other road users. For the environment it brings reduced CO2 and reductions in noise pollution. Graz in Austria has provided Europe with a source of inspiration in this area but also a process that has been watched carefully and lessons have been drawn from their experience. Graz was the first city in Europe to introduce a 30km/h speed limit for all roads in the urban area, apart from the through roads (ELTIS, retrieved 2012). Following a successful pilot which was accompanied by research they introduced the scheme more broadly across the city. The introduction was accompanied by an information campaign, signage, infrastructure measures, speed enforcement and changes to the parking regime. The campaign part pulled in different decision makers and multipliers, such as the church, to support the decision. At the start in areas where the new speed limit was introduced both the frequency and seriousness of collisions were reduced by approximately 25%. However, they do cite that this number then again began to rise once enforcement reduced (which underlines the important of physical, self-enforcing measures in 30 km/h zones). There was an improved quality of life due to lower noise levels, pollution and more soft modes.

# 12 Accessibility

The negative impacts of road transport can have a significant impact on overall quality of life in cities and in rural areas and are many and varied. Such impacts include collisions resulting in deaths and injuries and reduced access to services and opportunities as a result of perceived or real road risk. Furthermore, studies have suggested a clear relationship between traffic volume and quality of life, including the amount of social interaction with neighbours (Social Exclusion Unit, 2003). Increased mobility does not necessarily increase quality of life, for example driving can reduce interaction at a local level. Such impacts can contribute to social exclusion and deprivation.

The demand for transport is a ‘derived’ demand meaning that people travel, not for the sake of travel itself but, in order to reach services or opportunities which they desire or need including employment, education, health care and leisure facilities. As such, accessibility can have a major impact on overall quality of life and life chances. Mobility can be defined as the amount of travel undertaken and is different to accessibility, which can be defined as the amount of opportunities reached (Musselwhite & Haddad, 2010). Halden et al. defined accessibility from two view points: ‘origin accessibility’ which is ‘about the ease with which any individual or group of people can reach an opportunity’ and ‘destination accessibility’ or the ease with which a given destination can be reached from a given origin or set of origins (Halden et al., 2005). This also includes new possibilities of ‘virtual’ travel using technology and telecommunications to connect people and places. Considering transport in such a way

means that the concepts of reliability and flexibility are important considerations alongside simple journey time.

An evaluation of the accessibility of a location or for a group of people should include an evaluation of safety levels. Measures to improve road safety contribute to accessibility by removing some of the barriers which stop people from accessing local services e.g. reducing vehicles speeds and improving conditions for vulnerable road users will reduce severance caused by busy roads. Improving accessibility can contribute to improved road safety by reducing the need to travel, the distance travelled to access opportunities and modal choice.

## 12.1 Removing barriers to increase accessibility

Improving the walking environment, providing traffic calming and reducing speeds can all contribute to increased accessibility. Furthermore, urban realm improvements such as providing adequate lighting, using high quality materials in footway construction and minimising visual and physical obstructions from unnecessary or inappropriately placed street furniture can reduce risk for pedestrians. Improving pedestrian and cycling provision is discussed previously. See also ERSO text on Roads, Speeding and Pedestrians and Cyclists.

## 12.2 Information and journey planning

Helping people know and understand the travel options available to them is part of accessibility planning. Safety should be an integral consideration in this regard. In understanding travel options people should be educated about the safety risks and opportunities and provided with advice on how to make their journeys safer.

This includes better travel information provision, assistance with travel planning (individually, for households, work places, other key destinations/origins). ‘A travel plan is a package of practical measures to reduce the cost and environmental impact of work-related travel by offering staff realistic and cost-effective alternatives to their car (Derbyshire 2008). Travel plans promote flexible and sustainable transport solutions, such as car share schemes, working from home and cycle facilities, tailored to businesses’ individual needs but they are not anti car. A travel plan encourages people to use cars more wisely and offers them better alternative travel choices and should include the encouragement of safe and fuel efficient modes of transport (ETSC, 2010). In this regard the travel planning process can offer people more comprehensive and reliable information about the alternative choices available to them for example reliable bus route maps and timetables, maps of cycling facilities such as cycle lanes and bike parking and good quality pedestrian linkages. Travel behaviour can be influenced by new ITS applications that mainly provide the traveller with a better basis for decisions in terms of traffic and travel information. Journey planning should focus on identifying the safest most sustainable mode of travel as well as the safest, most efficient route. This would include the identification of and dissemination of information on safe and direct routes for pedestrians and cyclists as alternatives to short car trips.

# 13 Equity

In 2004 the World Report on Road Traffic Injury Prevention (WHO/World Bank) stated that: "Road crash injury is a social equity issue – equal protection to all road users should be aimed for since non-motor vehicle users bear a disproportionate share of road injury and risk (WHO, 2004)." This was part of a new understanding of road safety included in their "road safety paradigm shift" and which is a fundamental precept of the recommended *Safe System* approach. At present transport, as other areas, suffers from levels of inequality in that different road user groups are not served with equal access to safety. Disadvantaged groups include, for example, the elderly, children, young people, those on low incomes, people with mobility issues, vulnerable road users including pedestrians, cyclists and powered two-wheelers. Studies show that motor vehicle crashes have a disproportionate impact on the poor and vulnerable in society (WHO, 2004), (ETSC, 2007). The WHO argues that equal protection for all road users in transport policy should be a guiding rule, to avoid an unfair burden of injury and death for poorer people and vulnerable road users (ETSC, 2007). Measures to improve road safety should be linked to other actions to combat these inequalities. Some of which are elaborated below.

Inequality in health has been recognised by EU governments as a leading cause of premature death and disability and that action has to be taken at a national level (Council Recommendation, 2007). Introducing equity orientated policies and interventions should be targeted at narrowing the safety divide through action targeted at reducing the exposure to, risk of and consequences of injury for less affluent people or neighbourhoods (ETSC, 2007). This includes taking action in areas such have been covered above introducing traffic calming measures, integrating these considerations into land use planning to reduce risk and the resulting death and injury. Alongside tax rebates, social marketing to low-income households or other means tested measures governments should choose to legislate and enforce the most important safety measures. The WHO identifies here the example of imposing certain safe behaviours such as wearing seat belts or motorcycle helmets for all (WHO, 2009). "Safety for all" Strategies such as traffic calming, improved public transport and improved recreation areas will help to reduce injuries among people with low income and other population groups as well (WHO, 2009).

## 13.1 Children

Evidence from studies conducted in Europe and elsewhere on children and young people shows that low socio-economic status increases the risk of being injured in road traffic for both fatal and non-fatal injuries (WHO, 2009). Even in high-income countries, poor children are at greater risk than children from more prosperous families (WHO, 2009). A study in the United Kingdom reported that pedestrians and cyclists among deprived children have a much higher risk, with mortality rates more than 20 times higher among children of unemployed parents versus children of parents with the highest occupational status (Edwards et al. (2006a).

Purchasing of safety equipment such as the correct child safety restraints can be difficult for low-income households, even though these are now required by law across the EU. There are different examples of programmes which have introduced free or discounted child safety restraints (Apsler, 2003).

**Effects of Traffic Calming on Inequalities in Child Pedestrian Risk**

Jones et al (2005) have studied the effects of traffic calming on inequalities in child pedestrian risk. In city A, the child pedestrian injury rate ratio (injured children per 1,000) between the most deprived and the most affluent part of the city was 3.21 before traffic calming. Traffic calming was introduced, and the most deprived part of the city benefited from 4.80 times as many traffic calming features (speed humps, etc.) as the most affluent part. Following traffic calming, the injury rate ratio was reduced to 2.01. In city B, the child pedestrian injury rate ratio of most deprived area to most affluent area was 4.27 before traffic calming. After traffic calming, it was reduced to 3.96. In city B, however, the most deprived area received only 1.88 as many traffic calming features as the most affluent area. The study illustrates how social disparities in child pedestrian risk can be reduced by means of traffic calming (Also see Aarts and Van Schagen, 2006 and ACEA, 2010). The more strongly traffic calming is concentrated in the deprived areas, the greater is the reduction of the social disparities in risk.

Source: Jones et al., 2005

## 13.2 Disadvantage in old age

The European Commission recognizes “an aged society will demand transport services that are safe, secure, comfortable and user-friendly (European Commission, 2010).” While older people account for one sixth of the European population, every fifth person killed in road traffic is aged 65 or over (ETSC, 2008). Moreover, due to population ageing, older people will represent an increasing share of the total population. This could have a negative impact on road safety development in the future. If the risk rates of older people and others decline at the same pace, by 2050 one death out of three is likely to be an elderly person. Providing safe mobility to senior citizens deserves special attention and requires a re-think of policies and strategies related to transport and health. See ERSO Older Drivers web text.

Poverty affects old people and 22% of elderly people are categorised as being 'at-risk-of-poverty' with a higher number of elderly women being included (European Commission, Eurostat, 2010). The importance of independence and mobility is an important part of healthy ageing and staying active. Driving can maximise this mobility and enables this independent mobility. However poverty affects mobility choices including the dilemma of keeping a car and continuing to drive. In Wales, organisations have come up with the concept of "transport poverty" and are seeking official recognition for this. Modelled on 'fuel poverty' this is when people with low incomes, including old people spending a certain percentage of their income on their cars (PACTS, 2012). One of the costs that rise with age is insurance which can increase dramatically with age. Pay-as-you-drive could be adapted for older people introducing restrictions linked to journeys that carry higher risks. Once the decision has been made to give up driving, old people are then reliant on a mixture of friends and family and public transport and getting around on foot . Again, poverty here may play a role in influencing modal choice and it is crucial that measures are taken which support safe modal choices. A recent EU project AENEAS (Attaining Energy Efficient Mobility in Old Age) focused on this topic and made recommendations for improving the attractiveness of sustainable transport for older people in different European cities. This of course can have advantages for safety, as discussed previously but accessibility to information and journey planning needs to be taken into account.

**Smart Mobile Senior Citizens, Flanders, Belgium**

The "Smart Mobile Senior Citizens" project is engaging senior citizens throughout the Flemish Region in increasing awareness of sustainable transport modes in real life and increasing their use. The project initiator is Belgium NGO called Mobiel 21, which closely co-operates with municipalities and organisations of senior citizens for implementation. An important element is the self-activation of the older people with representative organisations taking the lead in implementing local actions. Since 2009, 12 municipalities have participated (Attaining Energy Efficient Mobility in an Ageing Society, retrieved 2012).

# 14 International cooperation with EU neighbourhood countries and third countries

Globally, each year nearly 1.3 million people die as a result of a road traffic collision. Ninety percent of road deaths occur in low and middle-income countries, which claim less than half the world's registered vehicle fleet. The EU is the biggest humanitarian aid donor worldwide and provides half of all international development aid. The objective of EU development policy is to eradicate poverty in the context of sustainable development, including the achievement of the Millennium Development Goals. The EU's funding instruments include: bilateral agreements (Partnership Agreements), the instrument for pre-accession assistance,

the European Neighbourhood Instrument, the Development Co-operation Instrument and the European Development Fund.

As the world's biggest aid donor, the EU needs to ensure that EU road safety policy objectives apply to external programming. At present road safety is not formally integrated into approaches or instruments on institutional strengthening in the transport or health sectors. Yet the EU is funding road crash injury prevention programmes abroad through several of the aforementioned instruments.

The White Paper states that “transport is fundamentally international and because of this, most actions in the Road Map are linked to challenges related to the development of transport beyond the EU borders”. Road safety has not been a policy or programmatic priority for DG Enlargement, Europe Aid or for the European Investment Bank (although the EIB has signed up recently to the joint Multi-Lateral Development Bank initiative) . However, Member States unanimously supported UN resolution A/64/266 on improving the global road safety crisis, which proclaims 2011-2020 as the Decade of Action for Road Safety. This provides a further framework for actors from around the world to engage in this topic. Certainly the EU has a role to include road safety in its relations with its close and even more distant neighbours when it comes to co-operating on transport.

The European Neighbourhood Policy was developed in 2004, with the objective of avoiding the emergence of new dividing lines between the enlarged EU and our neighbours and instead strengthening the prosperity, stability and security of all concerned. This policy is supported by a funding instrument: the European Neighbourhood Partnership Instrument. The EU’s TEN-T policy also aims to improve the most important transport axes for international trade between the EU and the neighbouring countries and beyond. Here there is opportunity for programmes to include funding for road safety including institutional strengthening, legislative reviews, capacity building for professionals on *Safe System* intervention. Moreover, once a twinning programme on road safety has been completed any new EU funds could be made dependent on the development/implementation of targeted road safety projects and plans. More broadly speaking, mechanisms to extend the EU’s Road Safety Policy Orientations to the neighbourhood countries could also be sought.

The EU’s national governments have substantial development and co-operation budgets. Different development agencies from the EU have undertaken road safety-related projects within their field of activity in transport. Road safety is not formally recognised as a separate category and is usually seen as a small part of the road transport sector. The total amount of bilateral aid specifically for global road safety probably amounts to less than $10 million a year (Commission for Global Road Safety, 2007). Other Member States such as Sweden and the UK have recently dropped road safety from their priority areas for development. Even though these include “health” and “sustainable development” , transport and road safety is no longer present. This follows years of work in this area.

**EU twinning in Egypt**

The EU supported a twinning project with Egypt on enhancing road safety for two and a half years with experts from Germany and Austria (Bauer). The specific aims of the project were threefold: to co-ordinate national road safety activities and legislative reform, support the institutional capacity of the General Roads Authority in the Egyptian Ministry of Transport and upgrade the road safety management system. The twinning involved around 30 experts from the EU and the Egyptian National Road Safety Board. Amongst the achievements were training for Egyptian infrastructure experts and police in state of art EU road safety knowledge. New proposals were made to revise key road safety related laws such as the Public Roads Law and traffic law. Proposals were made to introduce new standards and regulations on safe infrastructure management including road safety audits, traffic calming (in view of protecting vulnerable road users) and safety in traffic works zones. Other new areas of work include institutionalising co-operation between NGOs and the different sub-committees of the National Road Safety Board. Another output was the training of 150 police officers and engineers in accident reporting and accident investigations using special guidance which has been developed for Egypt. In future they will use the Geographical In-formation System (GIS) to identify exact crash locations and for defining a unique crash identification number. A special fund of the EU has allowed the piloting of the hard and software in 2011.

**National example-Spain-Argentina and beyond**

Twinning between governments has been organised within the context of IRTAD (International Traffic Safety Data and Analysis Group) (IRTAD, 2010). Here, low and middle income countries are twinned with an existing IRTAD member and a “new” country. The aim is to set up or improve safety data collection and analysis systems and thus integrate the new countries into the group. This is achieved through visits of experts between the two participating countries, formulation of recommendation for data collection and analysis improvement and participation in IRTAD meetings. This work is financed mainly through the World Bank’s Global Road Safety Facility. One of the twinning projects is between (Dirección General del Trafico of Spain) and Argentina and was started in April 2010. This Programme is part of a broader project financed by the World Bank Global Road Safety Facility. The IRTAD twinning is focusing on developing a Road Safety Monitoring and Evaluation System within the National Road Safety Observatory of the Argentinian Road Safety Agency. One result to date is the development of a standardized police form. This form is now already adopted in all provinces in Argentina. For the first time, in 2011, police in all provinces will record the same accident data, which will allow sharper analysis by the National Road Safety Observatory. This co-operation has led to greater interest in the Latin American and Caribbean region to create broader co-operation and has led 18 countries to create the Ibero-American Road Safety Observatory.

# 15 Tourism

Within the EU, holiday travel is an obvious area to find synergies between road safety and tourism policy. Links are already there at EU and national levels but these can be built upon and improved. At present the EU tourism industry generates more than 5% of the EU GDP, with about 1,8 million enterprises employing around 5,2% of the total labour force (approximately 9,7 million jobs)[7]. Per country share of GDP ranges from example in Cyprus 9.5%, Greece 4.2%, Spain 3,8%, Sweden 2.4%, UK 1.4% (Eurostat, 2010). When taking into account the size of the labour market, the largest shares employed in the hotel, restaurant and catering sector were found in Malta (7.9%), Spain (7.4%), Cyprus (7.3%), Greece (6.9%) and Ireland (6.5%) (Congia et al., 2011). Europe remains the world's number one tourist destination with 370 million international tourist arrivals in 2008, or 40% of arrivals around the world (European Commission, 2010). The EU's last tourism strategy was adopted in 2010 and it aims to: 'encourage a coordinated approach for initiatives linked to tourism and define a new framework for action to increase its competitiveness and its capacity for sustainable growth'. The Strategy did recognise that tourism policy is transverse in its nature and included the need to look at travel as a priority. 'This is particularly true of transport policy (sustainable mobility, passenger rights and safety and transport quality) (European Commission, 2010).' The EU has a developed system to protect passengers and consumers, including those with disabilities or reduced mobility, on all means of transport under its passenger rights initiative (European Commission, retrieved 2012). The headline Tourism Strategy of the EC does not yet include mechanisms for preventing loss of life and serious injury within the context of tourism and European citizens or others taking a holiday.

## 15.1 Information about modal choice and risk

There are numerous possibilities for taking action to improve the safety of holiday makers and integrating road safety concerns into tourism policy. The most important one is enabling tourists to make safe transport choices. Just as at home, it is important that information is there for road users about the different modes available and their associated risk to guide them in their choice. However, when abroad, tourists are often in unfamiliar territory and may have to contend with different infrastructure and road user culture.

Journey planning should be factored into holiday planning. Looking at how to get to one's destination is important, if road safety risks such as fatigue are to be avoided. If flying, then tourists need to look at how to manage the "final mile" or the leg from the airport or train station to the hotel. Efforts to make public transport easily accessible to tourists are important to help them to choose the safer transport option. Providing such information about public transport options at arrival points and easy payment mechanisms are all relevant. At present, there are numerous projects on promoting sustainable transport modes in tourism such as the examples from Austria such as 'Alpine Awareness' (retrieved 2012). The idea behind Alpine Awareness is to promote environmentally friendly travel (essentially public transport, and travel by bicycle, by foot). However, safety considerations are not yet included.

[7] When related sectors are taken into account, the estimated contribution of tourism to GDP creation is much higher: tourism indirectly generates more than 10% of the European Union's GDP and provides about 12% of the labour force.

There is ongoing work on developing a system of indicators for the sustainable management of destinations within the Network of European Regions for a sustainable and competitive European tourism (*NECSTouR) (0*) and the EDEN (European Destinations of Excellence) (European Commission, retrieved 2012) destinations One of the planned actions under this network is to organise awareness-raising campaigns for European tourists concerning the choice of destinations and means of transport. Again, this should be extended to include an indicator on safe mobility.

## 15.2 Information about traffic rules

EU Member States and the European Commission will have a legal duty to inform non-resident road users about existing traffic rules in their countries under Article 8 of the Directive on Cross Border Information Exchange (Directive, 2011) on road safety related offences. The European Commission will need to keep its website summary of the rules in force in Member States updated. Currently this can be found on-line entitled “Going Abroad”(European Commission, 2012). Member States also have obligations in this area. They will in turn need to provide information on these rules to the Commission as well as providing road users with the necessary information about the rules applicable in their territory. According to the Directive they should be looking to work with multipliers such as road safety bodies, non-governmental organisations active in the field of road safety and automobile clubs. Car clubs are already active in this area in providing information to their members before the holiday. Traffic police are also engaged and the EU road policing network TISPOL has developed driving guides to European countries. These provide clear and easy-to-follow information to answer the most frequently asked questions by visiting motorists. Recent changes in legislation are highlighted, with tips on what to do in the event of a breakdown or collisions. It is hoped that through raising awareness and linking this to increased enforcement that drivers will no longer feel above the law when they are on holiday and comply with road safety related traffic legislation.

**France – Information to Tourists**

France is a transit country where non-resident traffic rises to over 50% during the peak holiday season in certain regions. In 2008, France launched awareness-raising campaigns on the importance of complying with road safety related traffic legislation to its seasonal visitors. Information material in different languages were distributed at entry points to the country giving an overview of French traffic rules. It covers issues such as drinking and driving, speed limits, child safety. It alerts drivers to the presence of safety cameras to deter excess speed on French roads. There is a section on managing fatigue and a table of the main offences and penalties in France.

Source: Government, France, 2007.

## 15.3 Car Rental

Car rental is another area where safe choices can be offered. Here the car rental firms can play an important role in giving advice to the customer to guide them to making a safe choice and that they are choosing a vehicle type they are familiar with. Moreover they are an information point in providing guidance on rules and regulations to tourists in that country. In terms of encouraging compliance with the rules and making sure that there is no feeling of impunity car rental organizations can set up a system whereby if a driver does offend then the bill for the fines is transferred to them directly such as for example in Malta.

**Malta**

In Malta, tracking down non-resident traffic offenders is simplified by the fact that many tourists hire cars when visiting the island. Malta with a population of 412,961 hosts 1.5 million visitors every year, many of whom hire cars. Any detected traffic law offence is enforced in a very swift and efficient manner. As regards seat belt use and speeding fines, the tickets are sent within a 24 hour period to the car hire company who charges the credit cards of their hire clients. In the case of drinking and driving, offenders are taken to court immediately otherwise they are required to stay in Malta to deal with the court proceedings.

## 15.4 Access to Justice

In the event of death or serious injury, post-crash legal procedures are a matter for serious consideration for victims of traffic collisions whilst on holiday. Currently under development in the EU is an initiative guaranteeing the same level of protection, support and access to justice throughout the EU for victims of road traffic collisions (European Commission, 2011). With the new Communication on “Strengthening Victim’s Rights in the EU’, the European Commission identifies “compensation as one of the basic needs of victims (European Commission, 2011)”. It notes though that people in road traffic collisions in another Member State may face administrative and procedural difficulties when they seek compensation because of different limitation and prescription periods. The Commission aims to address this problem by proposing to harmonise the rules on limitation periods so that victims do not risk losing their right to compensation for procedural reasons. Within this context the European Commission recognises that although it has for many years taken action on road safety: “Prevention work is crucial not only for cutting crime and accidents in the short and medium term, but also for changing attitudes towards criminal or reckless conduct that can give positive, long-term and lasting results (European Commission, 2011).” Making a link between tackling road safety within the criminal and justice policy in relation to upholding the rights of victims across Europe is an important element in tackling thiscomplex issue.

# 16 Conclusion

This web text has illustrated how the integration of the regional, nation or local road safety strategy into other policy areas bring benefits. Joint objectives can be elaborated through co-operation between different areas of work in the public and private realm. This can be to the benefit of saving lives and reducing risk on Europe's roads. Integration of road safety into a broader range of policy areas need not to be an ad hoc process if the right mechanisms can be introduced. Conflicts, however, can arise, However with strong leadership of one agency on behalf of government to orchestra activity and by exchanging ideas and entering into dialogue with the many partners in different sectors, these can be identified early and avoided or a compromise can be found. The potential for finding synergies is broad and stretches beyond obvious areas for integration such as employment policy, health and environment. At the same time, that there is more scope to expand areas of common work to reach joint goals. Integration should be an ongoing process which should be monitored and revised within a spirit of dialogue between representatives of different policy areas.

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