Northern Ireland Assembly

Research and Information Service
Research Paper

5th October 2016

Des McKibbin

Examining Best Practice in Road Safety Management

NIAR 352-16

The purpose of this paper is to examine recent road safety policy interventions and wider environmental factors. It follows a recent RaISe publication on trends in road traffic collisions (NIAR 358-16). This paper will also provide an overview of approaches taken to road safety management in Sweden, the Netherlands and Denmark, which like the UK, are among world leaders in road safety.

Executive Summary

Road safety is viewed as a global issue and as such monitoring and policy development aimed at improving outcomes occur at the supranational (e.g. UN, EU), national (e.g. UK), provincial (N.I) and local level (councils). However, the extent of the road safety problem does vary significantly around the world, with low and middle income countries accounting for 90% of the world's road traffic deaths, despite having only half of the world's vehicles.

There are a broad range of measures that can be implemented to improve road safety which can be adapted to suit regional, national and local conditions. At a supranational level the EU actively compiles and disseminates best practice examples and publishes a suite of recommended policy orientations decennially.

In addition to proposing a range of measures designed to make the roads safer, the EC makes a series of recommendations for how member states should develop their road safety strategies in order to support community wide targets. The ECs road safety framework is based on three pillars:

1.   A common European road safety area;

2.   An integrated approach with other policies (health, environment, employment, etc.); and

3.   Shared responsibility (EU, national, local).

Whilst the EC are active in promoting policy it is innovations from the Netherlands and Sweden that have shaped the direction of road safety policy. Both countries policies; Vision Zero (Sweden) and Sustainable Safety (Netherlands) have become what is known as a 'Safe Systems' approach.

The OECD recommends that all countries, regardless of their level of road safety performance, move to a Safe System approach to road safety that addresses all elements of the road transport system in an integrated way with the aim of ensuring crash energy levels are below what would cause fatal or serious injury.

The safe systems approach has been adopted in the Northern Ireland Road Safety Strategy to 2020.

Between 2003 and 2013 the rate of fatal road traffic collisions in NI fell faster than any other UK region, indeed NI had one of the lowest regional fatality rates in the EU. However, there was a sharp rise in fatality numbers in 2014, the reason for which is unclear. There were a number of possible explanations for the drop, such as slowing of the economy, bad weather, low numbers of young people and therefore the spike may be explained by these factors normalising.

There are also number a number of uncontrollable external environmental, social and economic factors that can have positive or negative impacts on road safety. It is also worth considering if trends such as the re-stabilisation of speed and drink driving convictions are down to better compliance or an issue of enforcement – particularly given the corresponding increase in overall casualties and fatalities and the slowing of reductions to serious injury.

Contents

1   Road safety – a global policy issue

Road traffic collisions (RTC) resulted in 1.25 million deaths worldwide in 2015 and they are the leading cause of death among those aged 15-29.[1] Road safety is therefore viewed as a global issue and as such monitoring and policy development aimed at improving outcomes occur at the supranational (e.g. UN, EU), national (e.g. UK), provincial (N.I) and local level (councils).

That said, the extent of the road safety problem does vary significantly around the world, with low and middle income countries accounting for 90% of the world's road traffic deaths, despite having only half of the world's vehicles.[2] Figure 2.1 shows continental Europe has the lowest rate of road traffic fatalities (per 100,000 population). However, within that there is significant regional variation at the national and regional level.

Figure 2.1: Road traffic fatalities per 100, 000 population
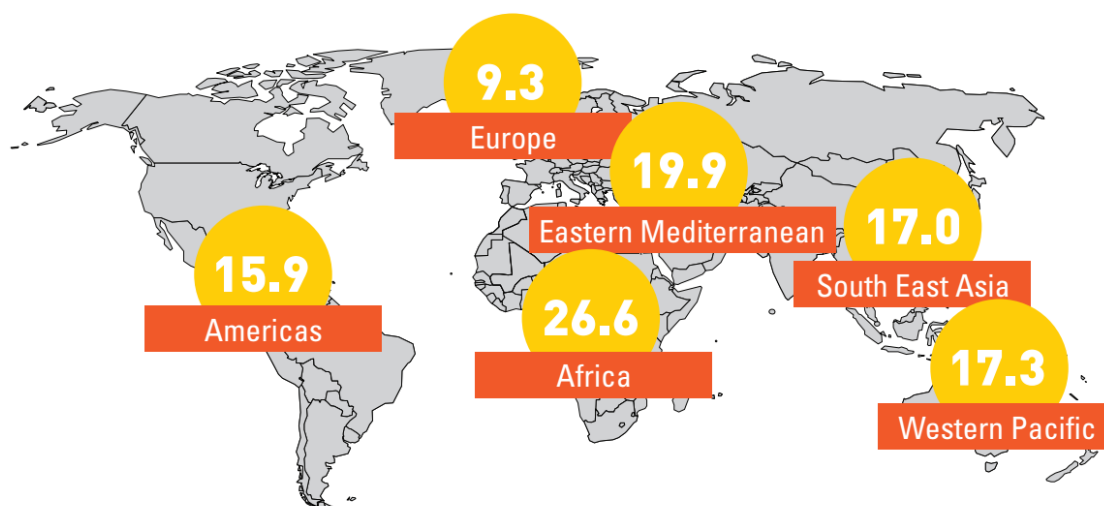
Source: World Health Organisation 2015

1.2 Improving outcomes

There are a broad range of factors that can contribute towards better outcomes for victims of road traffic collisions. The disparity between low and high income countries may suggest that factors such as the quality of road infrastructure, vehicle standards, emergency medical care and educational intervention all have a significant impact. Countries that have intervened through legislation – such as reducing speed limits, blood alcohol level tolerances and requiring the use of seatbelts for all vehicle occupants (measures which are not universally applied) have also been successful in both reducing the number of RTCs and improving the outcomes for victims.[3] It is likely

---

[1] (WHO) World Health Organisation (2016) *Global status report on road safety 2015* [online] available from: http://nia1.me/3bt
[2] Ibid
[3] Ibid – Section 2 Legislation and Road User Behaviour [online] available from: http://nia1.me/3bv

to be the combination of all the measures highlighted above that ultimately leads to safer roads.

2   Best practice in Road Safety Management

The European Commission (EC), DG Energy & Transport has previously funded a large cooperative exercise aimed at identifying and disseminating best practice solutions for road safety problems. This is to be applied in national strategies, ultimately supporting the goal of a 50% reduction target of road fatalities, as set out in the EC's 2001 Transport White Paper European Transport Policy for 2010: Time to Decide.[4]

2.1 Road safety measures

The SUPREME project ran from December 2005 until June 2007; it included analysis of road safety practices in all EU Member States as well as in Switzerland and Norway.[5] The work was carried out by a total of 31 national and international road safety organisations; they examined a broad range of measures which were divided into nine subcategories as follows:

1. Education and campaigns;

2. Driver training, driver testing and licensing issues;

3. Rehabilitation and re-licensing;

4. Vehicles;

5. Infrastructure;

6. Enforcement;

7. Statistics and in-depth analysis;

8. Institutional organisation of road safety and safety charter; and

9. Post-accident care.[6]

These sub categories then had sub-sub categories. For example, under education and campaigns there were 16, including very specific campaigns aimed at issues such as pre driver education; seat belt use; alcohol; lighting and visibility - to name but a few.[7]

---

[4] EC (2001) *European transport policy for 2010: time to decide* [online] available from: http://nia1.me/3cb

[5] EC (2007) SUPREME: Summary and publication of best Practices in Road safety in the EU Member States [online] available from: http://nia1.me/3ca

[6] SUPREME (2007) LIST OF MEASURES COLLECTED AND ANALYSED [online] available from:

[7] Ibid

The output from this project was two handbooks:

- [Handbook for measures at the country level](#)
- [Handbook for measures at the European level](#)

This recognises that some road safety areas, e.g. vehicle safety, are largely the responsibility of the EC and other international bodies, whereas most areas remain within the responsibility of national governments, or increasingly to regional or local authorities. The handbook for measures at the country level contains a large variety of practices of best, good and promising road safety measures under the nine categories listed above – these are summarised in annex one.

Overall the applicability of these measures will depend on the situation in any given Member State; for example, a Member State with a relatively poor road safety record will look to those with a history of strong performance; in this field, low numbers of collisions, particularly fatal and serious ones are ultimately how success is measured. The measures included in a national road safety strategy therefore *"…must be based on thorough analyses of the road safety problems each respective country is facing now, or might face in future".*[8]

2.2 Institutional arrangements

An integrated approach to road safety management, involving all relevant government and non-governmental stakeholders and headed up by one agency which coordinates efforts across all relevant sectors both within and outside of government, is promoted as international best practice.[9] [10] Such is its importance, the European Commission (EC) has identified the integration of relevant policy areas as one of the three main pillars of its Road Safety Policy Orientations 2011-2020 (see box 1):[11]

> *"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."*

This recognises that road safety is a shared responsibility, as noted in the Northern Ireland Road Safety Strategy (NIRSS) to 2020:

---

[8] SUPREME (2007) Best practice in road safety: Handbook for measures at a country level [online] available from: http://nia1.me/3cc PAGE 76

[9] Ibid – Section 1 The Current State of Global Road Safety (PAGE 14) http://nia1.me/3bw

[10] (ETSC) European Transport Safety Council (2003) Towards reduced road risk in a larger Europe [online] available from: http://nia1.me/3c0

[11] European Commission (2010) Towards a European road safety area: policy orientations on road safety 2011-2020 [online] available from: http://nia1.me/3bx

Everyone has a crucial part to play in reducing casualties. Government has responsibilities at European, UK and local levels in developing legislation and policies and driving initiatives and proposals forward. Statutory partners play critical roles in enforcing regulations and in dealing with collisions and their aftermath. Nongovernment stakeholders such as employers, the community and voluntary sector, motoring and insurance organisations, along with the general public, all have crucial roles in ensuring that they take responsibility for any actions that could have an impact on their own safety or that of others.[12]

Box 1: The European Commission's policy orientations on road safety 2011-2020

The European Commission's Road Safety Policy Orientations 2011-2020 – provides a framework with the objective of reducing road deaths by 50% by 2020. It is intended to inform Member States' own national road safety strategies in order to both support the 'common objective' (50% fewer fatalities by 2020), whilst also importantly, taking into account their specific starting points, needs and circumstances.

The framework is based on three pillars:
1.   A common European road safety area;
2.   An integrated approach with other policies (health, environment, employment, etc.); and
3.   Shared responsibility (EU, national, local).

It includes seven strategic objectives:
1.   Improve education and training of road users
2.   Increase enforcement of road rules
3.   Safer road infrastructure
4.   Safer vehicles
5.   Promote the use of modern technology to increase road safety
6.   Improve emergency and post-injuries services
7.   Protect vulnerable road users

Based on these the EC sets out what actions it will take to deliver the common objective, such as legislating, funding or sharing knowledge whilst it makes a number of recommendations for measures to be taken by individual Member States.

Source: EC

---

[12] DoE (2010) Northern Ireland's Road Safety Strategy to 2020 [online] available from: http://nia1.me/3c2

2.2.1 Partnership working in NI

The NIRSS committed to the establishment of a formal partnership to co-ordinate the delivery of its strategy with the aim of improving the future delivery of road safety in Northern Ireland. The NIRSS suggested that consideration would be given to extending existing structures such as the Road Safety Review Group and/or the development of an independent expert group. Another structure within Northern Ireland is the Road Safety Partnership which evolved from the Northern Ireland Safety Camera Scheme introduced into Northern Ireland on 1st July 2003.

The Partnership includes representatives of the Department of the Environment, Transport NI, the Police Service of Northern Ireland, the Northern Ireland Courts and Tribunal Service and the Department of Justice. The aim of the Partnership is:

- To support the Road Safety Strategy for Northern Ireland 2010 – 20 by reducing speeding and the number of injury collisions on the roads of Northern Ireland by targeted enforcement using a range of approved safety camera technology; and

- To support the Road Safety Strategy for Northern Ireland 2010 – 20 by delivery of educational campaigns, initiatives and direct interventions.[13]

Box 2: An integrated 'partnership' approach in practice

Scotland's Road Safety Framework is governed by a Strategic Partnership Board (SPB) which is responsible for collective decisions on strategic approaches, identifying and resolving high-level problems and issues, and public ownership of the Framework and its delivery.

Members who come from national and local government, the emergency services as well as non-governmental bodies. The SPB which also takes regular contributions from academia, analytical services and educators are not only expected to make key decisions on behalf of their respective organisations but also to ensure that these are followed through.

2.2.2 Accountability

While joint responsibility is a core concept it is also important to have one agency that is ultimately accountable for road safety:

> *"Well-orchestrated cross sectoral co-ordination with a strong focus on achieving results is crucial and the setting out of clear institutional roles and responsibilities is, therefore, of paramount importance […] 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***

---

[13] PSNI [online] Northern Ireland Road Safety Partnership – available from: http://nia1.me/3cd

with enough powers and management capacity, is in most cases, indispensable to avoid sub-optimal coordination of road safety responsibilities.[14]

2.3 Results focused

According to the World Health Organisation (WHO) the key to achieving sustained reductions in road traffic injuries is for countries to have a long-term vision and strategy for road safety, with defined and time bound objectives based on the *'best possible evidence'*.[15] According to DaCoTA on behalf of the European Commission:

Target setting in road safety is a success story. Targets specify the desired safety performance endorsed by government at all levels, partners, stakeholders, organisations and the community. Setting challenging but achievable quantitative final and intermediate outcome and output targets towards the ultimate Safe System goal to eliminate death and long-term injury has been identified as international best practice.

Global, regional, national and local jurisdictions and organisations in general are increasingly establishing management frameworks to implement road safety strategies and programmes towards the eventual elimination of death and serious injury through interim targeted reductions.[16]

2.3.1 Setting targets

In terms of approaches taken to target-setting, observed best practice suggests a process that includes:

- an appraisal of current road safety performance through high-level strategic review
  - what is working and where is there room for improvement?
- adopting a far-reaching goal for the longer term
  - European countries are increasingly adopting long term visions or goals for road safety e.g. Vision Zero and Sustainable Safety
- analysing what could be achieved in the interim and proposing targets
  - Analysis of empirical RTC data by key stakeholders in order to identify the most important road casualty problems
- agreeing targets across the road safety partnership and ensuring stakeholder accountability for results

---

[14] DaCoTA (2012) Integration of Road Safety in Other Policy Areas: Synergies and Conflicts, Deliverable 4.8i of the EC FP7 project DaCoTA [online] available from: http://nia1.me/3c6
[15] (WHO) World Health Organisation (2016) Section 1 The Current State of Global Road Safety (PAGE 16) http://nia1.me/3bw
[16] DaCota (2012) Quantitative road safety targets, Deliverable 4.8o of the EC FP7 project DaCoTA [online] available from: http://nia1.me/3bz

- ambitious, achievable and empirically-derived road safety targets should be adopted to drive improved performance and accountability.[17]

It is often the case that in addition to an overall target, quantified targets aimed at specific groups e.g. children and young people or vulnerable road users are included where empirical evidence may suggest specific interventions are required.[18]

2.4 Vision

In addition to establishing targets it is considered good practice to work towards a 'vision'. A road safety vision is a description of an aspirational state in the future – a long-term goal without a specified timeframe that focuses effort over a sustained period of time. *Sustainable Safety* in the Netherlands and the Swedish *Vision Zero* are the best known examples of road safety visions, which also have been adopted by other countries.[19]

2.4.1 Vision zero

Sweden has consistently been one of the countries with the lowest number of traffic fatalities (relative to population). However, in spite of this record in 1997 the Swedish Parliament introduced a "Vision Zero" policy that requires that fatalities and serious injuries are reduced to zero by 2020.

Road safety has traditionally been seen as the responsibility of the individual road user rather than on the designers of the system. Road safety policy has therefore tended to focus on encouraging good behaviour by road users via licensing, testing, education, training and publicity. In contrast, Vision Zero explicitly states that responsibility is shared both by the system designers and the road user:

- The designers of the system are always ultimately responsible for the design, operation and use of the road transport system and thereby responsible for the level of safety within the entire system.
- Road users are responsible for following the rules for using the road transport system set by the system designers.
- If road users fail to obey these rules due to lack of knowledge, acceptance or ability, or if injuries occur, the system designers are required to take necessary further steps to counteract people being killed or seriously injured.

At its essence, Vision Zero is based on the ethical imperative that "*It can never be ethically acceptable that people are killed or seriously injured when moving within the*

---

[17] OECD Towards Zero: Ambitious Road Safety Targets and the Safe System Approach

[18] Ibid

[19] Swedish Transport Administration (2010) Road Safety: Vision Zero on the move [online] available from: http://nia1.me/3cf

road system". It is therefore a "*moral obligation to design cars, roads and the rules of the road to protect road users from being killed in traffic".*[20]

Vision Zero strategic principles are:

- The traffic system has to adapt to take better account of the needs, mistakes and vulnerabilities of road users;
- The level of violence that the human body can tolerate without being killed or seriously injured forms the basic parameter in the design of the road transport system; and
- Vehicle speed is the most important regulating factor for safe road traffic. It should be determined by the technical standards for roads and vehicles so as not to exceed the level of violence that the human body can tolerate.

The approach is to proactively create a road environment that minimises the risk of road users making mistakes; but when they do, that it is not fatal. This includes considering all road users and tailoring solutions for example, in Sweden all residential areas have a speed limit of 30km/h (20mph); this recognises that 30km/h is the speed at which vulnerable road users (children, pedestrians, cyclists) who may be involved in collisions will have the greatest chance of survival.

2.4.2 Sustainable safety

Like Vision Zero Sustainable Safety is a proactive approach to road safety which has been developed and adopted in the Netherlands. In sustainable safety, the entire traffic and transport system is adapted to human limitations. The aim is to prevent crashes and to limit the consequences of crashes. For example:

- Roads are mono-functional and things like two-way single carriageway roads are prohibited;
- Layouts are clear and predictable;
- Speed limits are dictated by the road users i.e. where vulnerable road users are present speed is reduced;
- Severe outcomes are limited by forgiveness to the road environment (barriers, extended verges etc.);
- Road users are educated and informed properly and their behaviour is tested regularly.

The essence of the Sustainably Safe (SS) approach is: prevention is better than cure.

There are huge similarities with Vision Zero and Sustainable Safety:

- They are both ultimately focused on humans;
- Both assume physical laws which influence the risk and severity of a crash;

---

[20] Whitelegg, J. and Haq, G. (2006) Vision Zero: Adopting a Target of Zero for Road Traffic Fatalities and Serious Injuries [online] available from:

- They use a proactive approach to tackle road safety; and
- The system designer is considered responsible for a safe system design and for reduction of injury severity when the system is used unsafely.

Sustainable Safety does however differ from sustainable safety. For example, whereas Vision Zero focuses on infrastructure sustainable safety includes education, rules and regulations, enforcement, and vehicle technology as key parts of a sustainable traffic system.

2.4.3 Safe Systems approach

Both *Vision Zero* and *Sustainable Safety* have become what is known as a 'Safe Systems' approach. The OECD recommends that all countries, regardless of their level of road safety performance, move to a Safe System approach to road safety that addresses all elements of the road transport system in an integrated way with the aim of ensuring crash energy levels are below what would cause fatal or serious injury.[21] **The safe systems approach has been adopted in the Northern Ireland Road Safety Strategy to 2020.**

2.5 Common approach to road safety

Institutions such as the EC and WHO have been effective in promoting the issue of road safety, collating best practice and disseminating it to countries at both ends of the road safety scale. Projects like SUPREME provide a detailed resource for policy makers on the basis of which they can formulate policy.

An examination of road safety strategies from some of the top performing nations, particularly those within the EU, demonstrates how these nations are working towards common goals with shared principles. Each of the strategies looked at (see annex 2) follows the ECs policy orientations by assessing local issues and addressing them first and foremost, whilst also recognising the role this has in the wider objective.

---

[21] OECD (2008) TOWARDS ZERO: Ambitious Road Safety Targets and the Safe System Approach

3   Road safety in Northern Ireland

The UK has one of the best road safety records in the world; within that Northern Ireland (NI) has one of the best regional records (figure 1.1) with the number of deaths (per million inhabitants) in 2013 (31) lower than Scotland (35) and Wales (40). Indeed, NI ranked 18th among all NUTS 1 regions in 2013 (there are 98). The rate in the Republic of Ireland (ROI) was 41 (38th).

This has not always been the case; in 2003, for example, NI had the highest rate of deaths (per million inhabitants) of any of the UK's 12 NUTS 1 regions22 (88). The ROI's fatality rate was similarly high with 85 persons killed (per million inhabitants). London (37) followed by the North East of England (52) had the lowest fatality rates in the UK whilst the average of the 12 regions was 65 (see figure 1.2).

Figure 2.1: Victims in road accidents by NUTS 1 regions, Killed (Per million inhabitants) in 2013
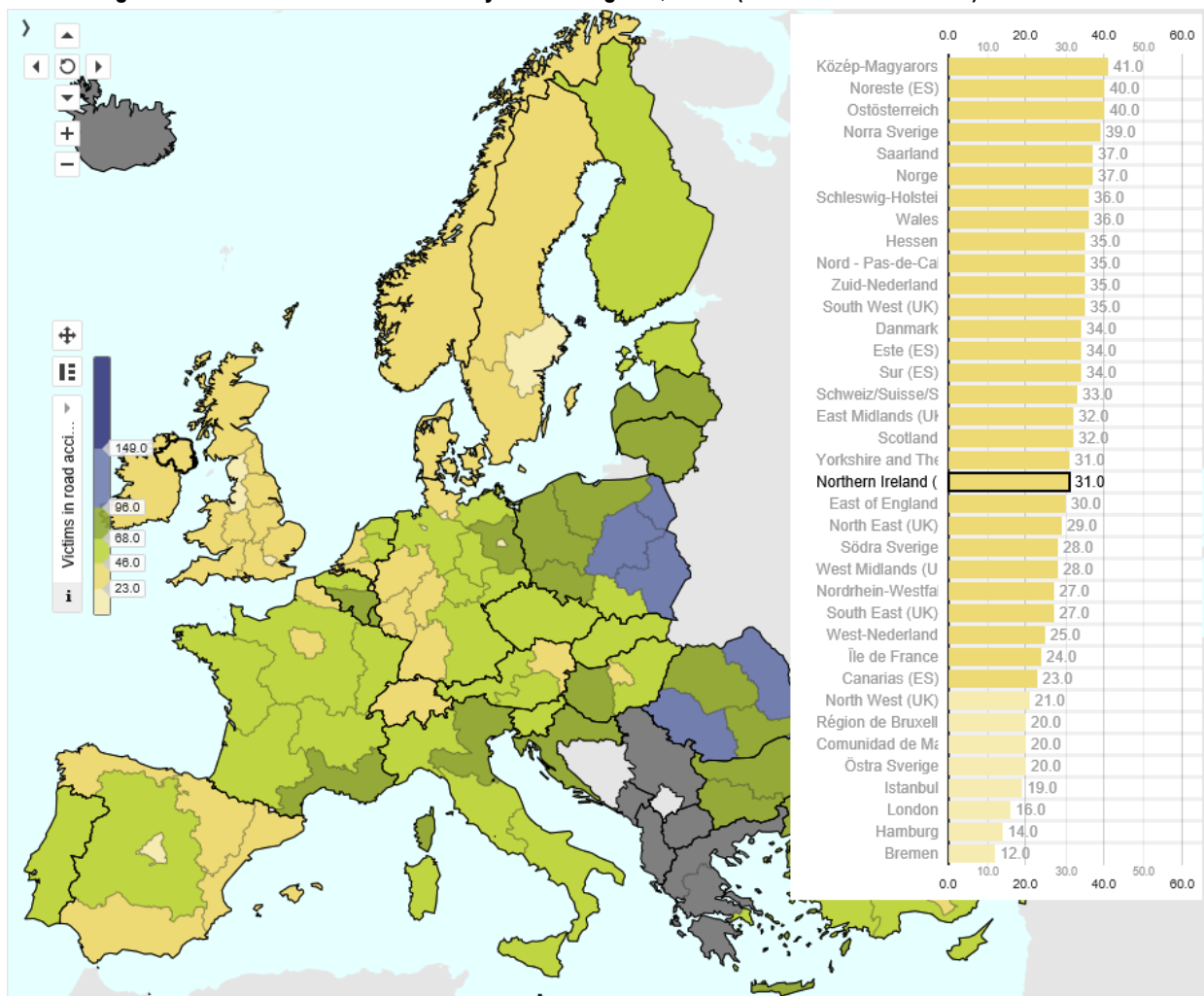
Source: Eurostat

---

22 The Nomenclature of Territorial Units for Statistics, (NUTS) is a geocode standard for referencing the administrative divisions of countries for statistical purposes. The standard was developed by the European Union.
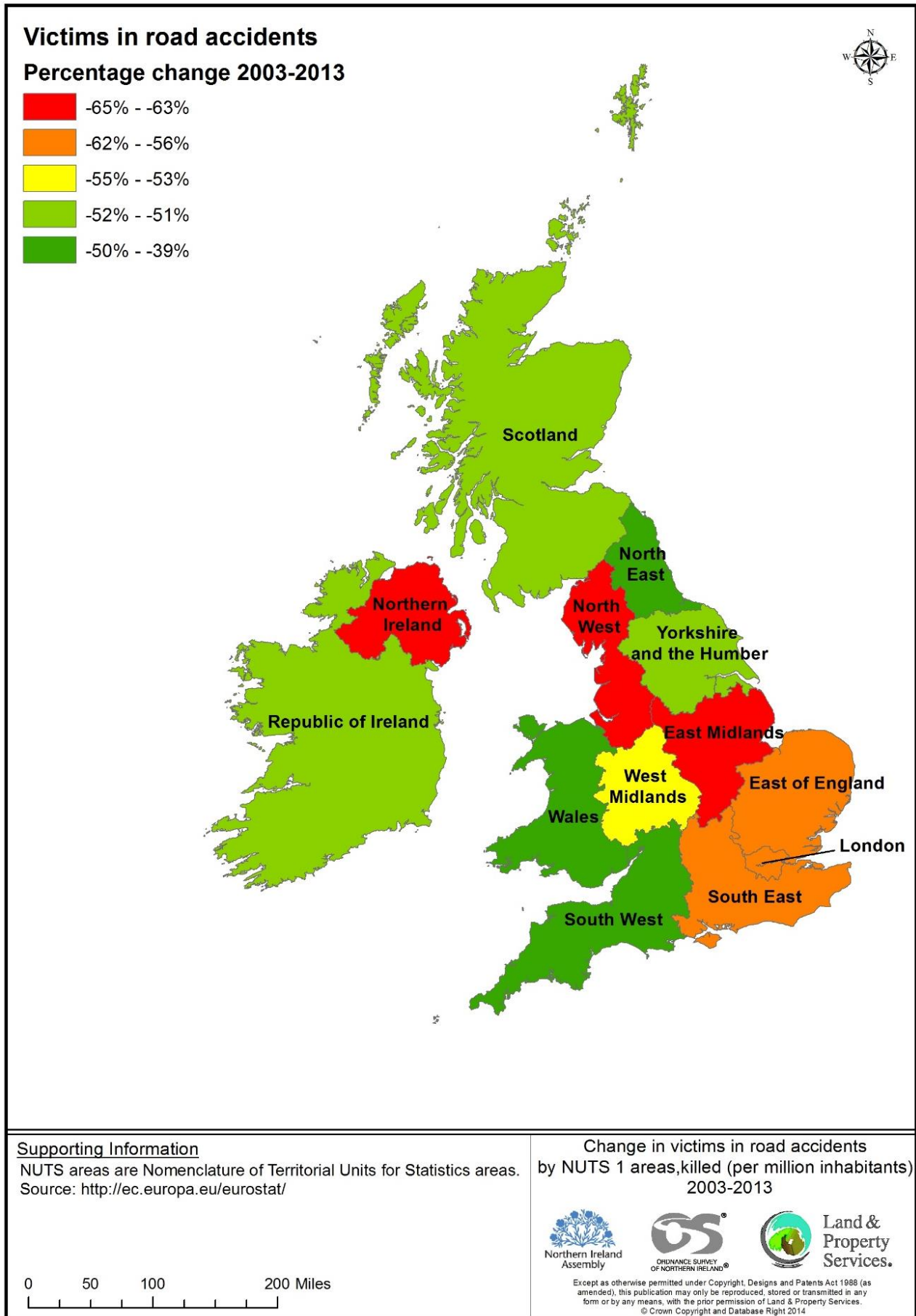
Figure 2.2: Victims in road accidents by NUTS 1 regions, Killed (Per million inhabitants) in 2003
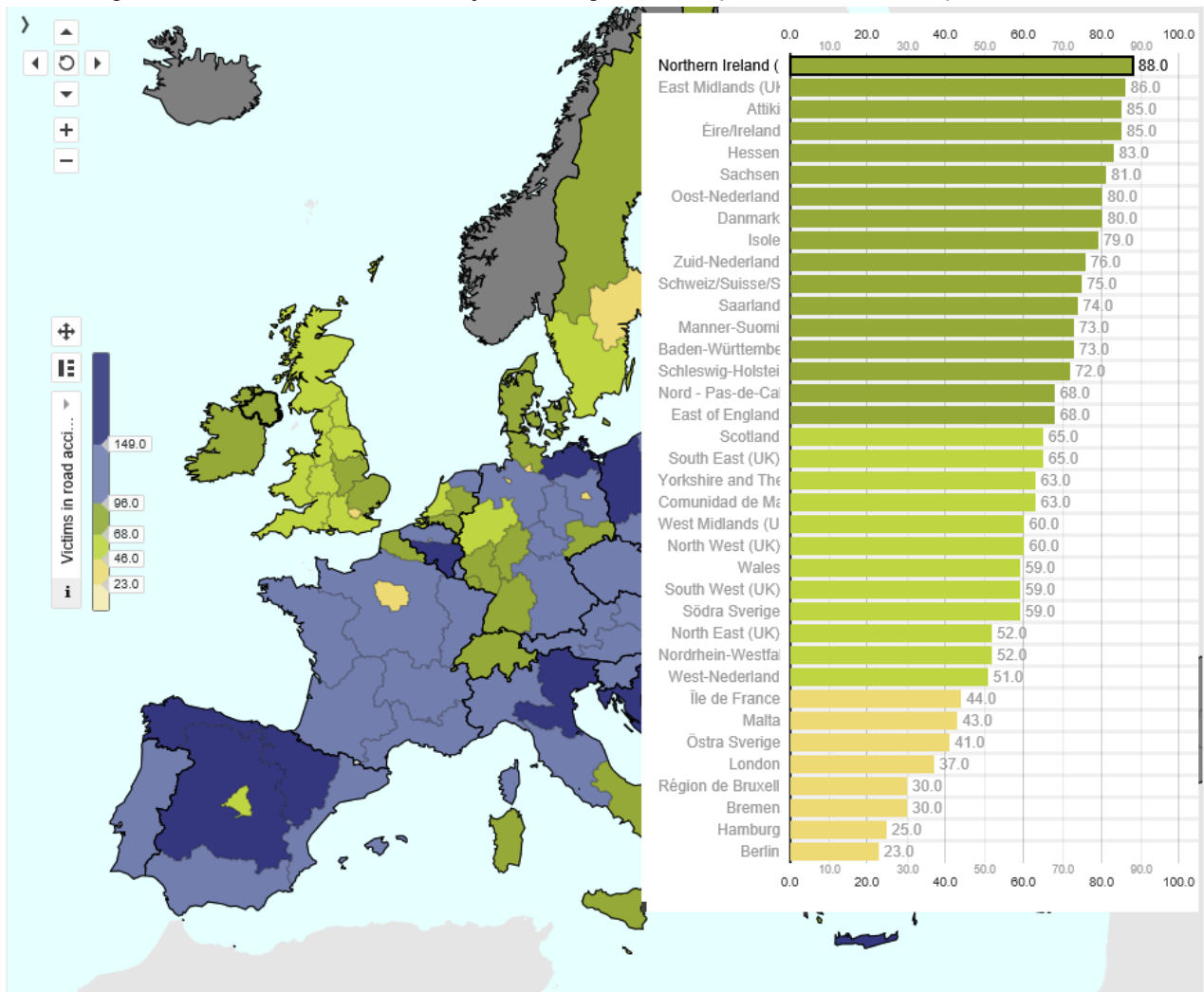
This shows (see annex one for more detail) that between 2003 and 2013 the rate of fatal road traffic collisions in NI fell faster than any other UK region or indeed the ROI – reducing by some 65%, compared to 52% in ROI; 51% in Scotland and 39% in Wales. The North West of England (-65%) and the East Midlands (-63%) were the most comparable to NI (see figure 1.3).

It is currently not possible to compare the levels of severe and minor injuries at the EU level due to the lack of a common definition. The European Commission is working with Member States on the agreement of common definition and this is expected to be resolved within the road safety policy orientation.

Victims in road accidents
Percentage change 2003-2013

- ■ -65% - -63% (red)
- ■ -62% - -56% (orange)
- ■ -55% - -53% (yellow)
- ■ -52% - -51% (light green)
- ■ -50% - -39% (dark green)

Scotland

North East

Northern Ireland

North West

Yorkshire and the Humber

Republic of Ireland

East Midlands

West Midlands

East of England

Wales

London

South East

South West

Change in victims in road accidents
by NUTS 1 areas,killed (per million inhabitants)
2003-2013

Northern Ireland Assembly

ORDNANCE SURVEY OF NORTHERN IRELAND®

Land & Property Services.

What this data does not show, however, is that the total number of road traffic collisions/casualties has continued to increase over the years apart from a notable reduction between 2009-10 and a more modest reduction between 2010-11. It is therefore only the outcomes in terms of injury severity which have improved with the significant majority of RTCs resulting in 'slight injuries' (see figure 1.3).[23]

Figure 2.4 Road Traffic Collision Casualties by outcome 2005 - 2015

---
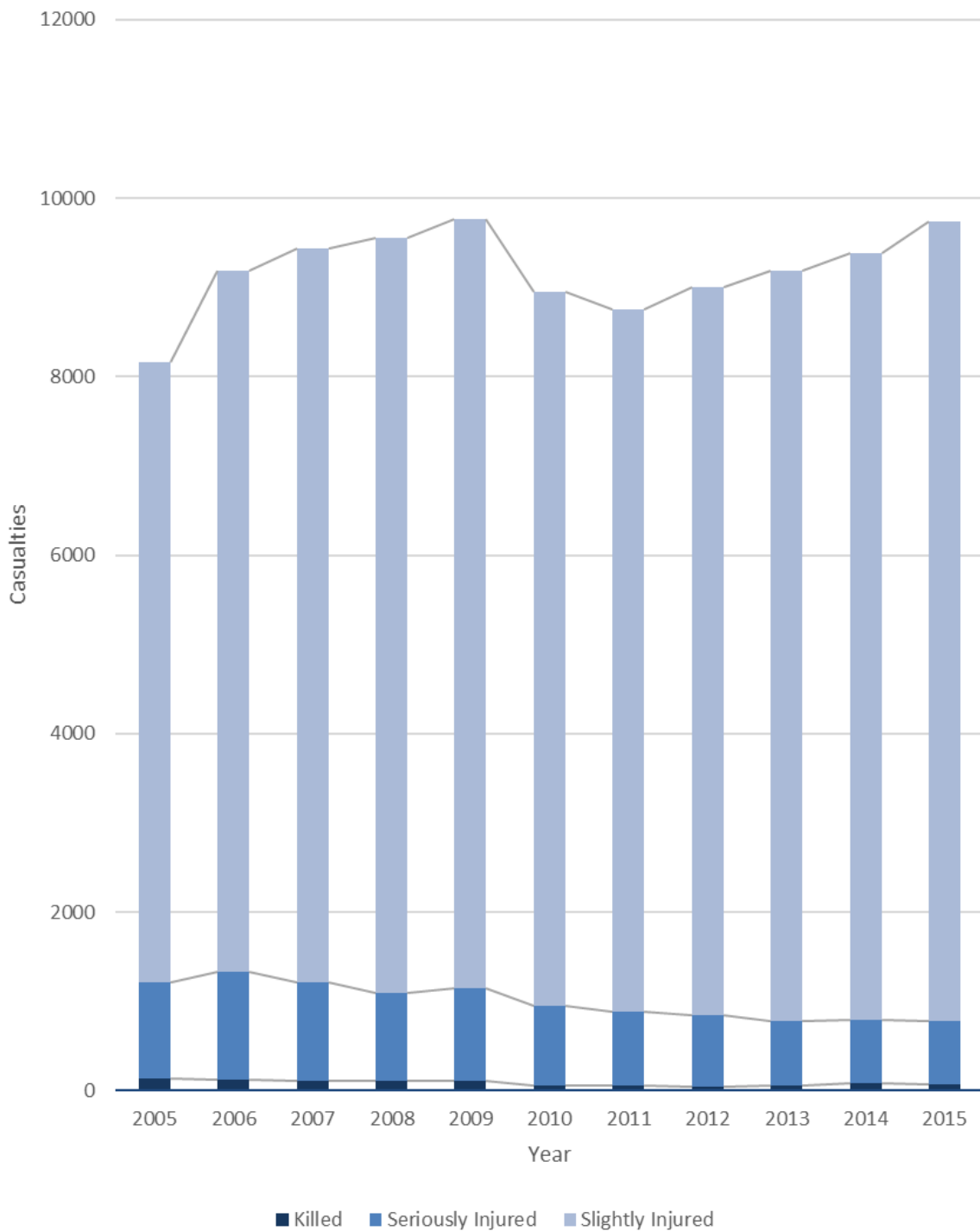
[23] PSNI (2016) Police Recorded Injury Road Traffic Collisions and Casualties Northern Ireland: Detailed Trends Report 2015 [online] available from: http://nia1.me/3br

3.1 Progress against strategy

The Northern Ireland Road Safety Strategy to 2020 has set targets for reductions in both the number of fatalities and the number of serious injuries which are measured against a baseline of the 2004-2008 average figures:

- To reduce the number of people killed in road collisions by at least 60% by 2020.
- To reduce the number of people seriously injured in road collisions by at least 45% by 2020.

In order to achieve a 60% reduction, the number of fatalities should not exceed 50 by 2020. This target had already been exceeded once in 2012, however, numbers have since risen with fatalities reaching a five year high of 79 in 2014; an increase of some 65% in two years. The number of fatalities in 2015 does represent a 41% reduction on the baseline (see figure 2.5) and therefore there remains a strong possibility this target can be met if the current trend can be reversed in time.

Figure 2.5: RTC Fatalities in Northern Ireland 2008-2015 compared to the Road Safety Strategy 2020 target

Source: PSNI

The trend as regards serious injuries is similar to that for fatalities with year-on-year reductions, bar a slight bump in 2009, eventually slowing before a small increase in 2015. To reach the 2020 target the number of serious injuries must not exceed 595 – the 2015 figure exceeded this by 116 (see figure 2.6).

Figure 2.6: RTC Serious Injuries in Northern Ireland 2008-2015 compared to the Road Safety Strategy 2020 target
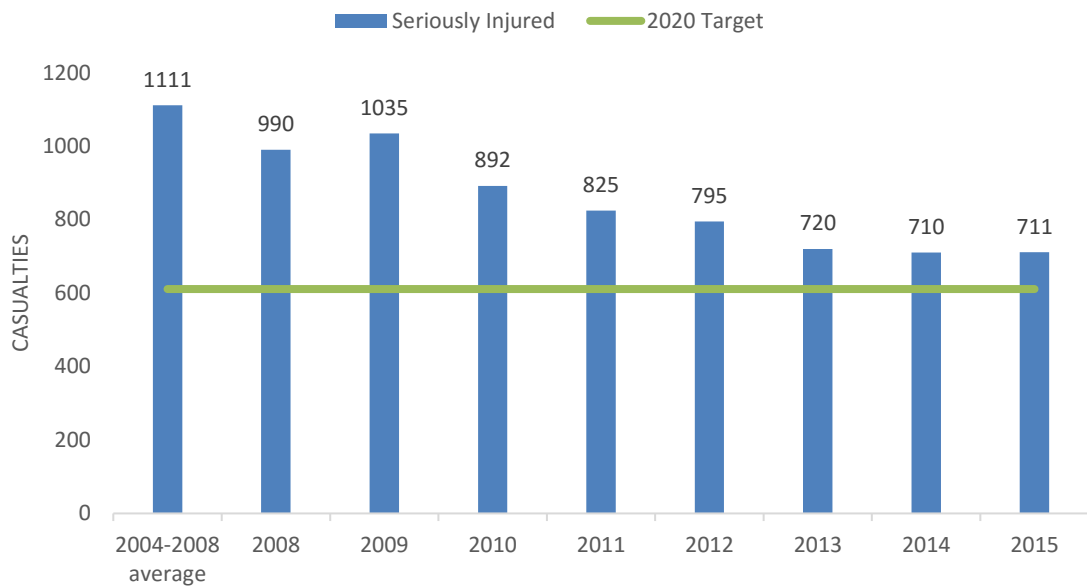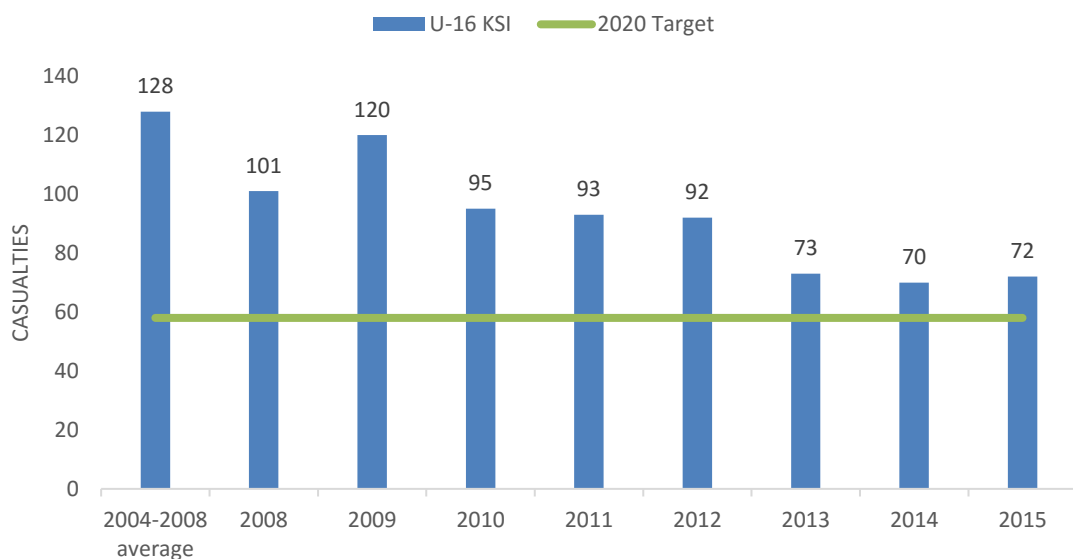

Source: PSNI

NI's Road Safety Strategy included targets aimed at protecting two particularly vulnerable groups; children (0-15 years) and young adults (16-24):

- To reduce the number of children Killed or Seriously Injured (KSI) by at least 55%.
- To reduce the number of young people KSI by at least 55%.

The strategy calls for the number of children killed or seriously injured to be no higher than 58 by 2020; there were 72 children killed or seriously injured in 2015 which is 14 higher than this target of 58.

Figure 2.7 Children (under 16) KSI in Northern Ireland 2008-15 compared to casualty reduction target for 2020

Source: PSNI

The Strategy has a target to reduce the number of young people (aged 16-24) killed or seriously injured by 55% by 2020 – in numerical terms this is a drop from 360 to 165. There was a low point in 2013 when there were 176 KSIs; this represented a 51% reduction on the baseline and was only nine KSIs above the 2020 target. However, an 18% increase was recorded in 2014 before falling again in 2015 where there were 197 KSIs involving young people; this is 32 above the 2020 target.

Figure 2.7 Young people (16-24) KSI in Northern Ireland 2008-15 compared to casualty reduction target for 2020
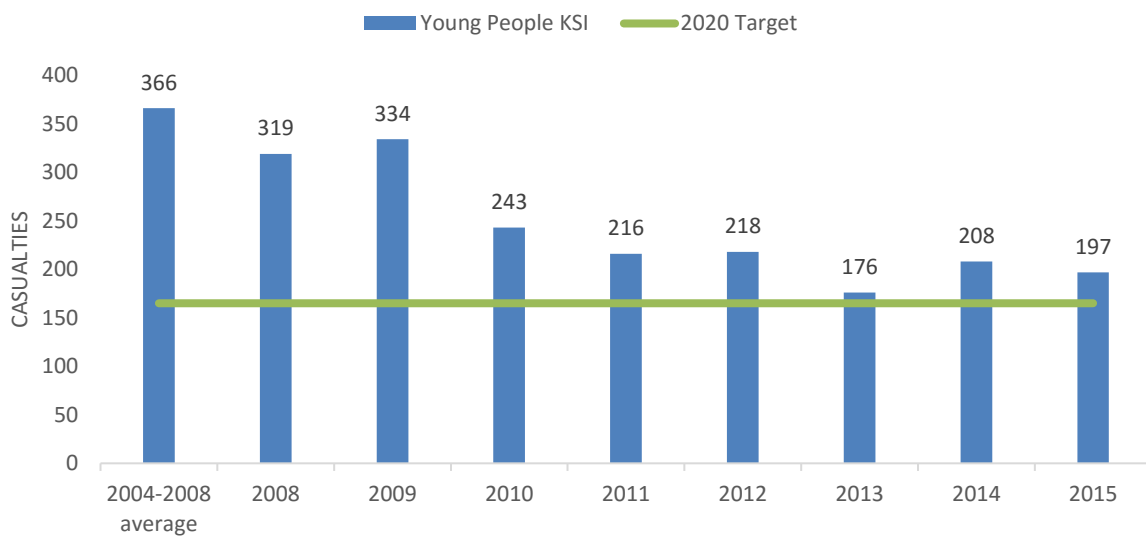
Source: PSNI

The 16 to 24 age group continues to be the most vulnerable to RTCs followed by the 35-48 cohort. Figure 2.8 shows how across all age groups (except for those 65+) males are particularly at risk.

Figure 2.8 Number of people killed or seriously injured by age and gender - 2015
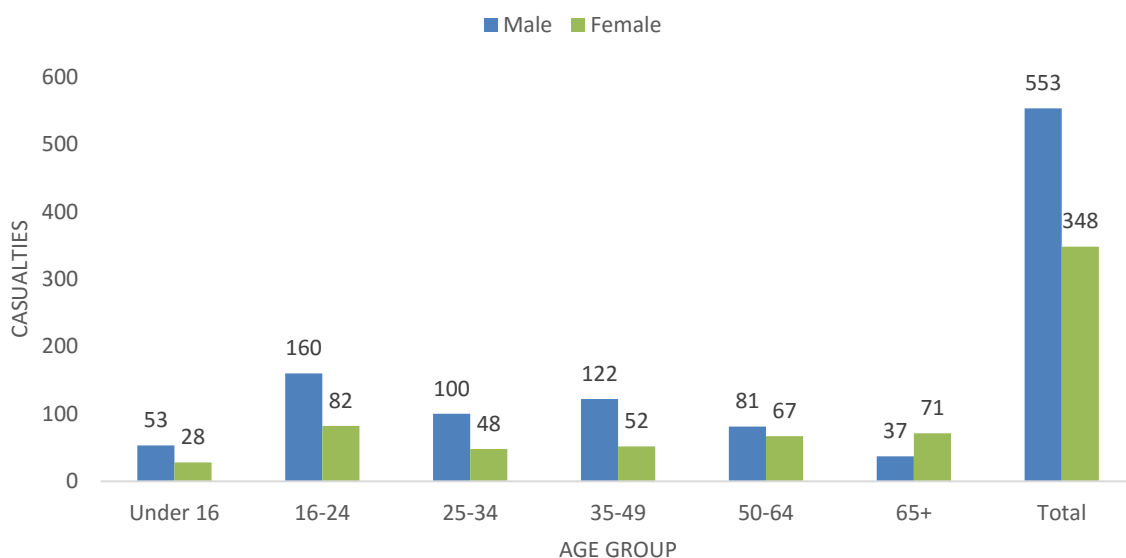
Source: PSNI

3.2 Analysis

Analysis of RTC trends and factors which might have led to the dramatic fall in fatal collisions in Northern Ireland from 2009-2012 was conducted by the former Department of the Environment (DoE). This suggested a number of possible contributory factors:[24]

- Falling numbers of males taking their driving test, and the reducing number of miles travelled by males pointed toward a reduction in the number of young male drivers in Northern Ireland – this is the group most at risk of being involved in RTCs and it is therefore a reasonable assumption that having fewer 'inexperienced drivers' could lead to a reduction in total KSIs.

  - 2016 figures show the total number of licences held has increased by 3% in the last three years (2012-2015) while the number of licences held by higher risk younger drivers (aged 17-24) has decreased by the same amount.[25]

- A reduction in the number of casualties where a drink/drugs driver was involved; a reduction in the number of drink driving convictions; and a reduction in the proportion of roadside breath tests testing positive suggested that there has been a reduction in the level of drink driving in Northern Ireland;

  - In recent years (2013 to 2015) drink driving convictions have continued to fall. However, the proportional decrease has slowed from 20% between 2011 and 2012, to 8% between 2013 and 2015.[26]

- A decline in the number of casualties where excessive speeding was the reported causation factor, including a substantial fall in the number of fatalities where speeding was the causation factor, and a similar reduction in the number of Fixed Penalty Notices (PCN) issued for speeding would imply that there has been a **reduction in the number of drivers speeding**;

  - Speeding offences increased by 30% from the 2004-08 average by 2010 before a steep decline between 2010 and 2013, where they fell by 45% before levelling off in the last two years. It is unclear, with such a dramatic fall, if this levelling off is due to drivers complying with the speed limit or is it a case that enforcement has been relaxed?

- The beginning and end of 2010 brought some of NI's coldest recorded weather. This may have contributed to a significant reduction in fatalities on 2009 levels as drivers tend to be more cautious on the roads in colder weather;

  - Whilst during the winter of 2010 Northern Ireland experienced some of the lowest temperatures, there have been relatively mild winters since then.[27]

- The economy began to decline in 2007 and this may have influenced driver behaviour and distances travelled.

---

[24] DoE Analytical Services Branch (2013) Investigating the reduction in fatal collisions in Northern Ireland from 2009-2012. TWO PARTS [online] available from: http://nia1.me/3c1

[25] DfI (2016) NORTHERN IRELAND ROAD SAFETY STRATEGY TO 2020: Annual Statistical Report 2016 [online] available from: http://nia1.me/3c3

[26] Ibid PAGE 8

[27] Met Office [online] Northern Ireland: climate. Available from: http://nia1.me/3c4

- As table 1 shows vehicle kilometres travelled began to fall sharply in 2009 in line with the steep decline in fatalities; both reaching a low point in 2012. As the economy entered recovery in 2012, the VKT has coincided with an increased number of fatalities.

Figure 2.9 Road traffic Collision fatalities 2008-2014 compared to Vehicle Kilometres Travelled
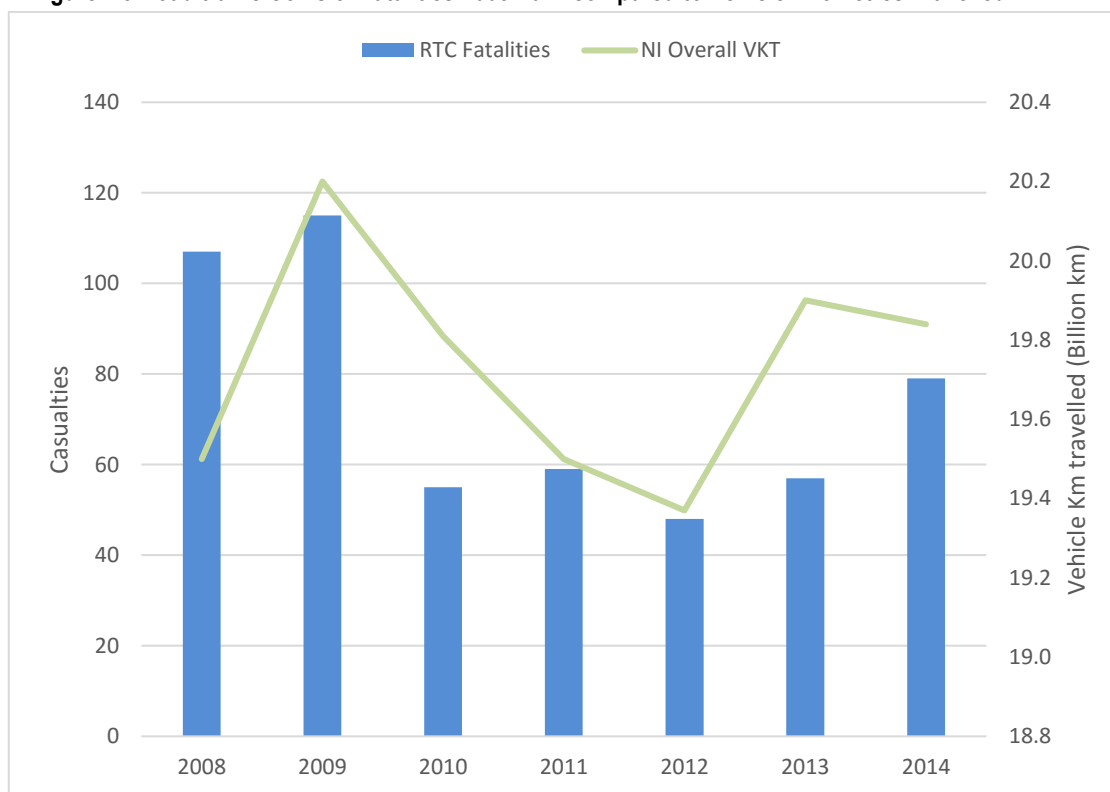
Source: PSNI and DfI

These factors may suggest that whilst specific interventions identified in the Road Safety Strategy appear to be having an impact on driver behaviour, such as:

- keeping road safety education services and resources up-to-date;
- targeting measures to influence young people's attitudes and behaviours;
- working directly with vulnerable road users such as walkers/cyclists and motorcyclists; and
- adopting national protocols for speed limit enforcement.[28]

There are a number of uncontrollable external environmental, social and economic factors that can have positive or negative impacts on road safety. It is also worth considering if trends such as the re-stabilisation of speed and drink driving convictions are down to better compliance or an issue of enforcement – particularly given the corresponding increase in overall casualties and fatalities and the slowing of reductions to serious injury.

---

[28] DoE (2010) Northern Ireland's Road Safety Strategy to 2020 [online] available from: http://nia1.me/3c2

Annex 1: Overview of best (B), good (G) and promising (P) measures

Institutional organisation of road safety		
Road safety visions	Sustainable safety (B)	NL
Road safety visions	Vision Zero (B)	SE
Road safety programmes and targets	Federal action programme for greater road safety (P)	CH
Efficiency Analysis	TARVA (B)	FIN
Resource allocation	Road safety fund (P)	B
Infrastructure		
Land use and network planning	Hierarchical, mono-functional road network (G)	NL
(Re)construction and design	Low speed zones in residential areas (B)	various
(Re)construction and design	Roundabouts (B)	various
(Re)construction and design	Measures against tree collisions (P)	F
(Re)construction and design	High risk site management (G)	various
Signing and marking	Rumble strips (B)	S
Signing and marking	Variable message signs (G)	various
Maintenance	Winter maintenance (B)	FIN
Quality assurance	Road safety audits (B)	various
Quality assurance	Road safety inspections (G)	various
Vehicles and safety devices		
Safe car design	Euro NCAP (B)	various
Two wheeler crash protection	Mandatory bicycle helmet use (P)	various
Vehicle conspicuity	Daytime Running Lights (B)	various
Vehicle conspicuity	Bicycle side reflection (B)	various
Driver support system	Intelligent Speed Assistance (P)	various
Prevention of unsafe traffic behaviour	Alcohol Ignition Interlock (B)	various
Prevention of unsafe behaviour	Event Data Recorders (black boxes) (B)	various
Road safety education and campaigns		
Road safety education	The road safety label in the Netherlands: Zebra Seef (P)	NL
Road safety education	Educative continuum (G)	F
Road safety education	Flash! A multi media theatre monologue (G)	B
Drink driving campaign	The BOB-Campaign (G)	B
Seat belt campaign	Goochem, the armadillo (G)	NL

Campaign on pedestrian visibility	The sign of light (G)	LV
Campaign for young car passengers	Speak Out! (B)	N
Driver training		
Training in driving schools	The initial driver training (G)	DK
Accompanied driving	More experience for learner drivers (G)	S
Insight-based driver training	Safety Halls (G)	S
Traffic law enforcement		
Speeding	The safety camera programme (B)	UK
Speeding	Automatic speed enforcement (B)	F
Speeding	Section control (B)	NL
Drink Driving	Random Breath Testing (B)	various
Seat belt and child restraints	Targeted seatbelt enforcement (G)	DK
Penalty point system	Penalty points (G)	LV
Rehabilitation and diagnostics		
Rehabilitation of severe violators	Mandatory driver improvement (G)	A
Rehabilitation drink-driving offenders	Training course for recidivist drunk drivers (G)	CH
Rehabilitation of young offenders	Rehabilitation seminar for novice drivers (G)	D
Diagnostic assessment	Traffic- psychological assessment of drunk drivers (G)	A
Post accident care		
First Aid	First aid courses integrated in driver training (G)	various
Emergency calls	Promoting the implementation of eCall systems (P)	FIN
Efficient emergency responses	Towtrucks on the motorway (G)	NL
Efficient emergency responses	Emergency lanes in congestion (B)	D, CH
First treatment and transportation	The use of a mobile intensive care unit (B)	DK
First treatment and transportation	Transport of road crash victims by helicopter (B)	NL
Psychosocial support	Psychological support for road crash victims (P)	ES
Statistics and In depth-analysis		
Road crash statistics	Correcting for underreporting of road traffic fatalities (B)	NL
Road crash statistics	The Rhone road trauma register (B)	F
Exposure data	The National Travel Survey (B)	UK
Exposure data	The road safety information system (P)	LV
Safety Performance Indicators	Monitoring speed and drink-driving offences (B)	CH
Safety Performance indicators	Monitoring mobile phone offences (G)	UK
In-depth crash data	In-depth analysis of heavy truck crashes (P)	NL

Source: SUPREME

Annex 2: A Comparative Table of Selected Road Safety Strategies

Country	Document	Vision	Focus areas/Priorities	Targets (to 2020)	Measures
Northern Ireland	Road Safety Strategy to 2020	To make a journey on Northern Ireland's roads as safe for all road users as anywhere in the world.	▪ Reduce the numbers of road deaths and serious injuries; ▪ Improving safety on rural roads; ▪ Protect young drivers (age range 16-24) and motorcyclists; ▪ Reducing inappropriate and illegal road user behaviours including speeding, drink and drug driving and careless and dangerous driving; and ▪ Improving knowledge and understanding of, road safety problems.	▪ 60% reduction in fatalities. ▪ 45% reduction in people seriously injured. ▪ 55% reduction in child KSIs ▪ 55% reduction in young person (16-24) KSIs	199 in total under subheadings, in summary: ▪ Consideration of specific needs of vulnerable road users ▪ Develop cycling infrastructure ▪ Safer roads: Incl. Speed limit review and traffic calming ▪ Improve road environment incl. lines, lighting verges, barriers ▪ Exchange knowledge of best practice and carry out research ▪ Embed road safety in planning process ▪ Promote safer vehicles ▪ Targeted enforcement ▪ adopt the ACPO speed limit enforcement guidelines. ▪ Changes to driver testing ▪ Promotional campaigns
Scotland	Go Safe on Scotland's Roads, it's Everyone's Responsibility: Scotland's Road Safety Framework to 2020[29]	A steady reduction in the numbers of those killed and those seriously injured, with the ultimate vision of a future where no-one is killed on Scotland's roads, and the injury rate is much reduced	▪ Leadership ▪ Rural Roads ▪ Sharing intelligence and good practice ▪ Drink Drive ▪ Children ▪ Seatbelts ▪ Drivers aged 17-25 ▪ Speed	▪ 40% reduction in KSIs; ▪ 50% reduction in child KSIs; ▪ 10% reduction in the slight casualty rate.	▪ Reduce the drink drive limit. ▪ Introduce powers for the police to carry out breath testing anytime, anywhere. ▪ Increase marketing throughout the year ▪ increased enforcement to raise the perceived risk of being caught. ▪ Promote the use of data enabled roadside breath screening devices by Scottish ▪ police forces. ▪ Raise awareness of the dangers of fatigue among drivers.

[29] Scottish Government (2013) [online] available from:

					▪ Raise public awareness of the possible effects on driving after taking some prescription or over the counter drugs and illegal drugs. ▪ Work with partners ▪ police forces. ▪ Ensure Home Office type approval of roadside drug testing devices
Wales	Road Safety Framework for Wales 2013-20[30]	A continued reduction in the number of people killed and seriously injured on Welsh roads, with the ultimate aspiration of no fatalities.	▪ Drink and Drug Driving ▪ Speed ▪ Careless Driving ▪ Mobile Phones ▪ Seat Belts	▪ 40% reduction in KSIs; ▪ 40% reduction in (aged 16 to 24) KSI ▪ 25% reduction in motorcyclist KSI.	▪ Seek powers from the UK Government to set drink drive limits ▪ Work with Wales Road Casualty Partnership who are responsible for camera enforcement ▪ Conduct speed limit review
England (UK Gov.)	Strategic Framework for Road Safety[31]	To ensure that Britain remains a world leader on road safety.	▪ Safer vehicles and road engineering ▪ Improving knowledge, attitudes and overall behaviour as regards to road safety among young people ▪ Targeted enforcement: Target serious and/or repeat offenders with heavy sanctions and make more use of remedial education for those making mistakes. .	▪ 37%-46% reduction in fatalities; ▪ 40%-50% reduction in KSIs	Enforcement ▪ Introduce a fixed penalty offence for careless driving ▪ Increase penalty fines ▪ Withdrawal of statutory option for (blood test) drink drivers ▪ Create new drug offence – dealing with specific drugs ▪ Enhance power to seize vehicles Technology ▪ Enhance road side detection of drink and drugs Education ▪ Update theory test ▪ Better educational offerings for offenders ▪ New post-test qualification Knowledge sharing ▪ A new website for the comparison of local performance information ▪ Develop a portal for road safety professionals

---

[30] Welsh Government (2013) Road Safety Framework for Wales 2013-20 [online] available from: http://nia1.me/3c7
[31] DfT (2011) [online] available from: http://nia1.me/3c9

| Republic of Ireland | Road Safety Strategy 2013-2020[32] | To raise Ireland's road safety performance to that of the best performing countries in the world, and close the gap with countries such as the United Kingdom, Netherlands, Sweden and Australia. | ▪ Vulnerable road users
▪ Alcohol consumption
▪ Speeding
▪ Drug Driving
▪ Seatbelt compliance
▪ Work Related Vehicle Safety
▪ Mobile phones | ▪ 23% reduction in fatalities.
▪ 30% reduction in serious injures | 144 Measures covering four topics:
▪ Education Measures (51 incl.)
　▪ public education/awareness campaigns
　▪ new media engagement
　▪ safe crossing by pedestrians
　▪ awareness of intoxicated pedestrians
　▪ use of personal protection equipment for cyclists and motorcyclists
　▪ awareness of blind spots on HCVs
　▪ road users and workers at road works
　▪ care for young and older people
▪ Engineering Measures (17)
　▪ Implement safety schemes at high risk locations on regional and local roads.
　▪ Develop design guidelines for forgiving roadsides
▪ Enforcement Measures (38)
　▪ Carry out targeted operations of traffic law enforcement with a particular emphasis on safety offences. These priority offences are:
　　• Excessive and inappropriate speeding
　　• Impaired driving (alcohol and drugs)
　　• Restraint/helmet use
　　• Mobile phone use.
▪ Evaluation Data and Research Measures (34)
　▪ Undertake annual surveys of speed, seatbelt usage and other road user behaviours and Safety, publish findings each year |

---

[32] (RSA) Road Safety Authority (2013) *Road Safety Strategy 2013-20* [online] available from: http://nia1.me/3bs

| Netherlands | Road Safety Strategic Plan 2008-2020: From, for and by everyone[33] | Sustainable Safety, cooperation and an integrated approach. | Based on analysis of trends and accident statistics a number of areas that require specific attention have been identified:

This involves various groups of vulnerable road users, people who cause unsafe traffic situations, and categories of roads and vehicles:
• Pedestrians;
• Cyclists;
• Single-person accidents;
• Children;
• The elderly;
• Novice drivers;
• Drivers of motor scooters, mopeds and microcars;
• Motorcyclists;
• People driving under the influence of alcohol, drugs, medication or fatigue;
• Drivers who violate the speed limit;
• Roads with speed limits of 50 and 80 km; | • ≤ 580 fatalities
• ≤ 12,250 injuries. | Measures come under three main headings:
1. Introducing measures for all traffic:
  ▪ education, enforcement, engineering
2. Take tough approach to those who cause unsafe situations:
  ▪ Novice drivers (more likely to have accidents);
  ▪ Delivery vans and lorries (cause more serious consequences in a collision);
  ▪ Roads that have 50 km and 80 km speed limits (remain relatively unsafe); and
  ▪ situations involving single-vehicle accidents (such as a passenger vehicle ending up in the water).
3. Protecting vulnerable road users more effectively:
  ▪ Six groups of road users have a higher change of falling victim to road accidents. These are: pedestrians and cyclists, motorcyclists and motor scooterists (although motor scooterists also cause traffic accidents), children and the elderly.
  ▪ These groups accordingly receive extra attention in road safety policy.
  ▪ Lifelong education is essential to the strategy |

[33] Ministry of Transport, Public Works and Water Management (2008) Road Safety Strategic Plan 2008-2020: From, for and by everyone [online] available from: http://nia1.me/3bu

			▪ Lorries and delivery vans		
Sweden	Vision Zero	between 2007 and 2020 the number of fatalities is to be halved to no more than 220 and the number of seriously injured reduced by a quarter.			
Denmark	Every Accident is one too many: Danish Road Safety Commission National Action Plan, 2013-2020	Every Accident is one too many: a shared responsibility	Ten focus areas: 1. Speeding 2. Alcohol and drugs 3. Inattention 4. Failure to wear seat-belts and helmets 5. Pedestrians 6. Cyclists and moped riders 7. Young drivers up to age 24 8. Accidents with oncoming traffic 9. Single-vehicle accidents 10. Accidents at rural junctions	to halve the number of deaths, serious injuries and minor injuries. ▪ no more than 120 road users killed on Danish roads. ▪ no more than 1,000 road users seriously injured ▪ no more than 1,000 road users suffering minor injuries	Legislation, sanctions and controls ▪ Targeted police controls ▪ Access to electronic data from vehicles Education and communication ▪ Road safety policy in companies ▪ Inattention campaigns ▪ Campaigns focusing on the important function of parents as role models ▪ Campaigns on "reading the road" The roads ▪ Self-explanatory roads ▪ Reduction in distractions outside the vehicle ▪ Rumble strips on country roads ▪ Central crash barriers on major roads ▪ Local speed limits at rural junctions ▪ Variable speed limit signs Vehicles ▪ Black boxes ▪ Lane monitors ▪ Blind spot detection systems ▪ Drowsiness detection systems ▪ Emergency braking systems