

The Shared Road to Safety

A Global Approach for Safer Motorcycling



IMMA

INTERNATIONAL
MANUFACTURERS

MOTORCYCLE
ASSOCIATION

May 2014

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Preface

At worldwide level there is an increased use of Powered Two Wheelers¹ in both developing and developed countries. As a result of urbanisation, associated congestion and the shift in economic balance, there is an increased need for mobility in developing nations. More and more people choose PTWs as a result of the benefits they provide. At the same time there is a global challenge to ensure sustainability from a road safety perspective.

In many situations, PTWs have not been adequately addressed in local, national and regional policy plans. This needs to change by introducing inclusive policy plans – which means a positive consideration of PTWs in transport plans, in an integrated perspective.

The safety of PTW riders is a high priority of the global motorcycle industry as represented by IMMA. Safer motorcycling leads to more sustainable motorcycling and the realisation of the key benefits that motorcycles can bring to transport and the economy.

As road safety policy and practice evolves in a global sense, it is becoming increasingly clear that there is a role for the global institutions in supporting countries and regions in their efforts to reduce the social and economic toll of road casualties. The UN Decade of Action on Road Safety is a welcome initiative towards this end.

However, equally clear is the fact that the global institutions need to take a holistic approach to road safety issues, particularly in developing countries. The mere ‘imprinting’ of developed nation road safety policies and strategies on developing countries could otherwise have unintended economic and social effects on such countries.

Road safety strategy should be focused on a progressive improvement of both road safety policy and practice standards of road safety and not on immediate implementation of advanced safety policies in countries and regions which will require time to develop institutions, economics and infrastructure to enable them to move towards the highest standards. As illustrated in this document, still too many countries lack even basic standards for roads and IMMA strongly believes that the path to enhanced road safety comes primarily from first securing basic infrastructure and through the establishment of sustainable and respected traffic and transport policy making processes.

Both in developing and in more developed countries, the sharing of best practices is key, like the sharing of proven techniques in social and safety policy designed to support safer roads. A number of examples are illustrated in this document as they relate to motorcycles.

IMMA believes that the most sustainable route to safer motorcycling lies within taking a comprehensive approach to safety policy and practice, based on a ‘shared responsibility’ approach.

In order to realise this and ensure that safety is managed with an even hand and on a level playing field, the first and most important step is to recognise motorcycling’s place within society and overall transport strategies. Indeed, the OECD firmly stated this key point in their primary recommendations from the 2008 Lillehammer safety conference.

Such an approach will open up the ability to integrate PTW safety as part of broader transport planning. This will result in not only fewer PTW casualties, but also the important role that motorcycling plays in social, business and emergency transport.

¹ The term “Powered Two-Wheeler” (PTW) covers a wide diversity of vehicles. The products are divided into different segments such as moped, scooter, street, classic, super-sport, touring, custom, supermoto and off-road motorcycles. In international regulatory environment, PTWs fit under the term vehicles of category L. IMMA represents mopeds, motorcycles and three-wheelers. Therefore, IMMA refers to PTWs as Powered Two and Three wheeled Vehicles.

Cycling is a worldwide important mode of transport which shares many common issues with motorcycling when it comes to safety, infrastructure policy and issues arising from other road users. Like cycling, motorcycling is not in itself dangerous. But riders of both modes are subject to certain vulnerabilities on the world's roads. By recognising the socially positive attributes of cycling, much has been done to improve cycle safety and improve visibility within traffic. The same approach is now needed for motorcycling.

This document 'A Global Approach to Safer Motorcycling' updates and replaces the IMMA motorcycle safety document 'HHRT – Headlight, Helmet, Road Surface and Training' published in 2010. The key principles in HHRT still apply, but the new document includes a selection of global best practices for policy makers' consideration and implies a wider perspective on sustainable road safety – the position of the Powered Two Wheeler (PTW) in society, its economic contribution, how PTWs are used and how infrastructure can be developed to support rider safety. This document emphasises the importance to consider local, national and regional differences of motorcycling in the context of policy making.

IMMA is delighted to have recently become a member of the UN Road Safety Collaboration and looks forward to assisting discussions on key matters of road and motorcycle safety.

IMMA recommends this document for the use by the global institutions, safety managers and policy makers worldwide, as a valuable resource for developing holistic motorcycle safety and transport policies.



Shungo Akizuki,
Chairman,
IMMA Road Safety Working Group 2013-2014



Dato' Syed Mohamad Aidid
Sponsor, IMMA President 2010 - 2012

The purpose of this document

This document has the intention of:

- Engaging policy makers, safety experts, road users, and all related stakeholders in supporting and enhancing safer motorcycling at global, regional and national level.
- Providing recommendations for attention to key aspects of overall transport policy and planning, in addition to motorcycling focussed safety policy.
- Identifying PTWs' characteristics compared to other vehicles. It highlights the different styles and uses of PTWs, and the regional distinctions between attitudes and usage patterns, traffic and infrastructure environments.
- Revealing the importance of an integrated approach towards PTW safety for achieving real, efficient and sustainable results.
- Providing an overview of the safety activities that the motorcycle industry has already undertaken at the global and regional level.
- Promoting a set of successful best practices that have been implemented across the world by governments, industry and other important stakeholders for consideration in a fully holistic global motorcycle safety and transport policy.

"Improving the safety of PTWs must consider all the actors and elements at play.

It is not enough to pay attention to PTW riders, one must also monitor their interactions with all other road users, the environment, the vehicles and the social, cultural and political dimensions that shape and supervise their use.

Moreover, action should not be restricted to the most obvious parameters but must also take into account the background behind the problems".

(OECD - ITF Joint Transport Research Centre draft Report "Safety of Powered Two Wheelers", 2014)

Executive Summary

This document calls upon governments across the globe to take a more strategic approach to motorcycle safety, incorporating the active involvement of all relevant stakeholders.

This approach is not necessarily a globally prescriptive one, as there is no one single type of motorcycle rider and no one single motorcycle riding environment dominating in the different regions of the world.

In this document IMMA promotes the sharing of best practices from around the world. The objective is to stimulate national road safety authorities to consider what may be the best approach for their citizens in relation to motorcycle safety and transport policy.

IMMA members believe that the following approach should be taken by all road safety stakeholders: Policy, Infrastructure, Training and Technology.

In order to successfully implement the four stage safety strategy any action must involve all relevant stakeholders. Actions must have an understanding and appreciation of the traffic situation specific to the country in question and using accurate, standardised data to inform and support any policy decisions.

Four Stage Strategy

1 – Public Policy Considerations

It is important for officials and policy makers to recognise that PTWs are a key mode of transport which fulfils a number of important and diverse roles – in many cases particularly important to local economies and citizen mobility. As such, they should be integrated into policies and initiatives aimed at creating a safer environment for users and addressing vulnerabilities that all users of two wheeled transport sometimes face (cyclists and motorcyclists).

The promotion of PTW usage in transport policy can have a considerable and positive impact on reducing traffic density in heavily congested cities and can bring economic gains through access to jobs, social mobility and even healthcare in developing nations where other transport modes are unavailable, impractical or too expensive.

2 – Infrastructure suited to Safer Motorcycling

In many developing countries, uneven, damaged road surfaces are a large contributing factor to poor motorcycle safety. However, even in high income, developed countries, safety issues caused by poor infrastructure persist. Examples include badly positioned or unnecessary street furniture, visibility at junctions, poor quality or ‘potholed’ roads, dangerous crash barriers and raised divides on roundabouts.

3 – Training for riders and awareness raising among other road users

The Human Factor has been shown to be the most critical in PTW accidents. IMMA supports both pre- and post-license training for motorcycle riders. It is furthermore crucial that other road users have an appreciation of the dangers of misjudging the speed or behaviour of a PTW rider – including the common error of failing to see an approaching PTW.

IMMA supports an integrated approach to a better understanding among other road users. This is why training for all types of license holders should include awareness of the characteristics and behaviours of other vehicles and other vehicle users. This would include the common causes of accidents, such as perception failures or misjudgements of capabilities, understanding of vehicle blind spots, or the differences in stopping distances.

4 – Technology advances

The industry is fully committed to on-going research into and development of safer on-vehicle PTW technologies, safety devices, via individual manufacturers' as well as pan-industry projects.

Work by industry, governments and other stakeholders has resulted in a quite significant improvement in PTW fatalities per 10.000 vehicles in most countries/regions (2011 vs 2005). This relative reduction of PTWs fatalities must be seen against a background of a large increase of the PTW circulating park during the same period.

In other words, the actual risk of an individual having an accident on a PTW has fallen despite fatality records not having improved as fast as is desired. It should also be noted that significant disparities exist between the safety performances of different road users' and PTW riders' safety performance. These differences can be largely explained by differences in traffic mix by regions.

In order to provide a significant progress on PTW's safety (particularly in reducing the PTW proportion of overall traffic fatalities), policy and practice needs to move beyond isolated responses. Policies should include a wider and more holistic consideration of how PTW safety can be further improved through the recognition of motorcycling in overall transport strategies and PTW inclusion in mainstream transport policies that seek to improve the roads environment for users..

A Supported Safety Strategy

The four strategic tiers are supported by 3 fundamental requirements for success:

1. An Integrated Stakeholder Approach

Whilst recognising that many improvements have been made to vehicle safety, with further developments likely to follow as motorcycles evolve, a true solution to safer riding requires the involvement of all road traffic stakeholders. This includes the driving communities, riders themselves, public authorities and governments, research institutions, national road infrastructure designers and local town planners - among others.

2. Accurate and Harmonised Data Collection

An essential step in identifying the true extent of the different causes of PTW accidents is the systematic collation of accident data and the details of crashes involving PTWs. This is essential in order to identify and set up realistic goals, targets and eventually measures. Cross-border comparisons and analyses of real value cannot be made today due to insufficient comparable data, in particular usage data and accidents per km/mile travelled. Common themes of accident causation will enable the proper identification of solutions and the sharing of correct best practice solutions among regions.

3. A Tailored Approach to Local Situations

Any strategies, campaigns or activities aimed at safer riding will be most effective if they have public and rider acceptance. This can be best achieved if there is a proper consideration given to tailoring measures to the local traffic needs. This includes specific national, regional or local constraints, such as: numbers of PTWs in circulation, the types of PTW usage, e.g. majority leisure, commuting or utility, distance travelled by the PTW fleets, weather conditions, etc.

IMMA, the manufacturers and related businesses that IMMA represents, are committed to working together with other stakeholders to play a part in the much needed development of an integrated approach to analysing, developing and promoting the uptake of safety solutions. This is an area where much work remains to be done by the global institutions.

Chapter 1: Introduction of the International Motorcycle Manufacturers Association (IMMA) & Industry's Commitment to Safer Riding

IMMA is the association which represents the manufacturing industry of powered two wheelers (PTWs) at the global level.

Today, IMMA represents the major part of the worldwide manufacturing of PTWs, with membership as follows:

Regional association members

The Motorcycle industry in Europe (ACEM): representative of the industry in Europe with members from Austria, Belgium, Czech Republic, France, Germany, Greece, Italy, Ireland, the Netherlands, Poland, Romania, Spain, Sweden, Turkey and United Kingdom.

The Federation of Asian Motorcycle Industries (FAMI): representative of the industry in Indonesia, Japan, Malaysia, the Philippines, Republic of China (Taiwan) and Thailand.

National manufacturing members

The Society of Indian Automobile Manufacturers (SIAM)

The United States Motorcycle Manufacturers Association (USMMA)

Associated members

The Federal Chamber of the Automobile Industries (FCAI), representative of the industry in Australia

The Motorcycle and Moped Industry Council (MMIC), representative of the industry in Canada

 <p>The Motorcycle industry in Europe acem</p>		
 <p>Federal Chamber of Automotive Industries</p>	 <p>The Motorcycle & Moped Industry Council Le Conseil de l'industrie de la motocyclette et du cyclomoteur</p>	

From its inception, IMMA has been a member driven organization, providing the necessary services to the industry via its expert committees, dealing with environmental issues, road safety and the harmonization of technical rules.

For more than 50 years, IMMA has been a strong contributor to the work of the UNECE, in particular the World Forum for the Harmonization of Vehicle Regulations (WP.29) and the Road Safety Forum (WP.1). The World Forum has incorporated into its regulatory framework the technological innovations of vehicles to make them safer and more environmentally sound.

Following the consideration that motorcycle safety requires attention beyond local and regional level also at the global level, IMMA established its Road Safety Task Force in 2008. In 2010, IMMA published "HHRT Motorcycle Safety - IMMA contribution to the Decade of Action" - the precursor of the current publication. HHRT identified the priority instruments for improving motorcycling safety that should be considered in safety policies and recommended the Headlight, Helmet, Road surface and Training approach. Following this publication, IMMA recognised a further need for promoting 'inclusive' policies integrating motorcycling in local, national and regional transport and mobility policies and the need for exchange of experience through best practices. Consequently Road Safety activities in IMMA expanded and were brought under a new permanent high level working group to allow acceleration of its road safety activities.

Aside of the activities of the IMMA members in their respective regions and countries, IMMA has made key contributions to road safety networks, such as the International Traffic Safety Data and Analysis Group (IRTAD), the International Transport Forum (ITF). Since 2013, IMMA has been contributing to the United Nations Road Safety Collaboration (UNRSC).

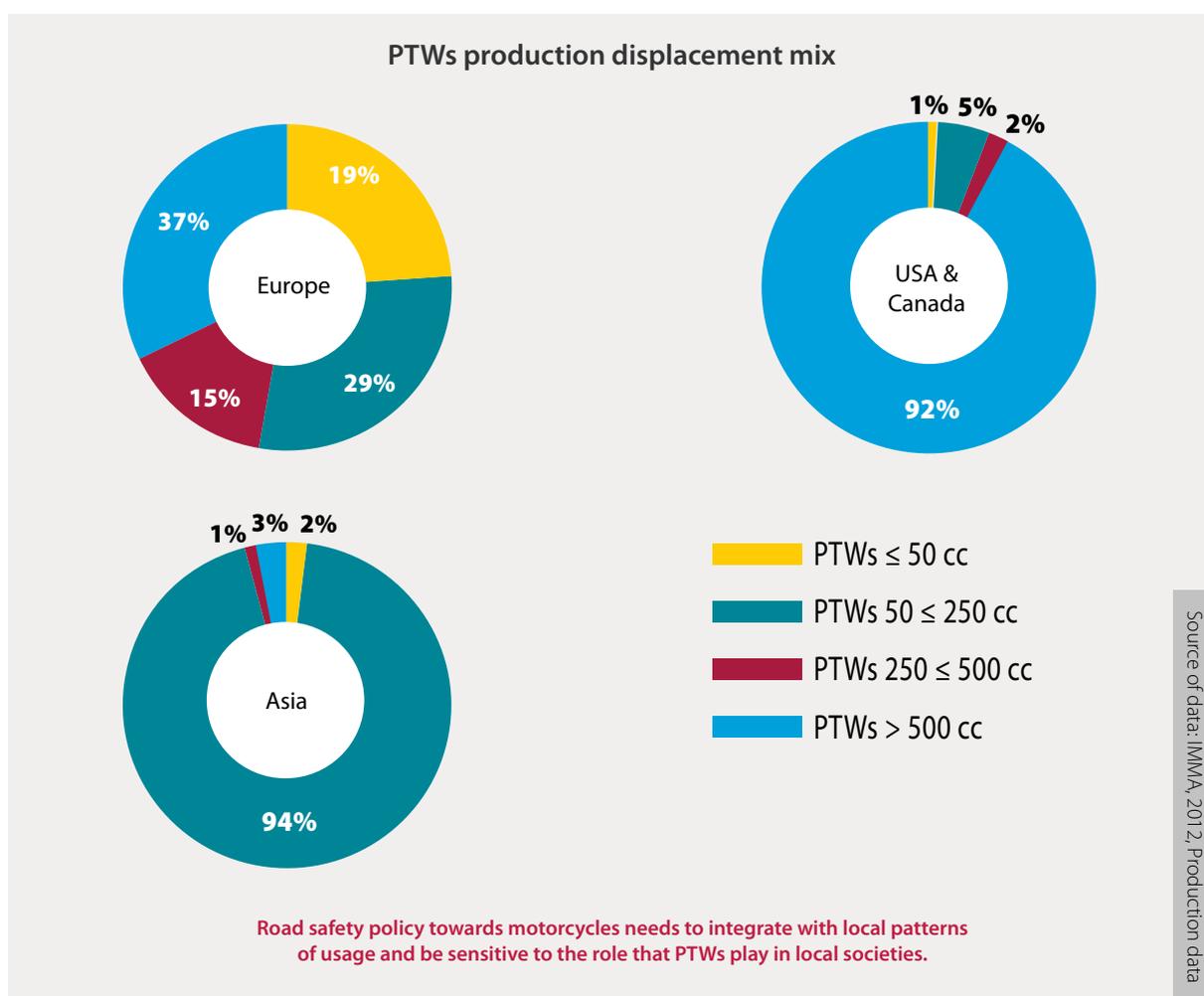
▲ IMMA's Main Objectives for Promoting Safer Motorcycling:

1. To demonstrate to policy makers that an integrated approach, involving multiple stakeholders, is an important factor in improving PTW safety.
2. To promote key tools and instruments that should be in place in a PTW safety policy.
3. To prompt national and regional policy makers to adequately consider PTWs in traffic policies.
4. To promote the safe use of PTWs and to improve the skills of riders.
5. To support and contribute to the process of updating International and Global Agreements in the frame of UNECE WP.29 (harmonisation of vehicle regulations) and UNECE WP.1 (road safety).
6. To foster a healthy competitive environment across the global PTW industry and to promote the development and use of state of the art technologies.
7. To support forums establishing standards and methodologies e.g. on accident data collection and analysis.
8. To support and contribute, through all of the above, to the UN Decade of Action.

Chapter 2: The role of Powered Two Wheelers (PTWs) in Society: Changing Perceptions

▲ Diversity of products

The term “Powered Two wheelers” (PTWs) includes products from small 50cc step-through vehicles, up to motorcycles of 1000cc and over. These products are divided into different segments, such as moped, scooter, street, classic, performance or super-sport, touring, custom, supermoto and off-road motorcycles and tricycles.



Many people consider ‘motorcyclists’ to be a homogeneous group of people and as such, road safety solutions and public policy decisions are often aimed at this ‘group’. Sometimes, PTW safety policy is poorly differentiated from car safety policies, with PTW statistics in transport indicators ‘lumped in’ with car statistics. Safety policy often considers the motorcycle safety ‘problem’ as a standalone issue, without considering how PTWs are used, or their contribution to the overall traffic and transport ‘mix’. Often, **little regard is given to how PTW safety issues can be transformed into safety and transportation ‘opportunities’.**

However, the reality of the situation in all countries is that PTW riders within the same country represent a wide variety of people who use vast numbers of different vehicle types, with different characteristics, designed for myriad different terrains and used for numerous distinct purposes. These differences can be even starker across a global comparison, where the terrain, cost of living, infrastructure and climatic conditions vary so greatly.

It is this diversity that means policy approaches cannot work to a one-size-fits-all approach designed to improve “motorcycle safety globally”. Safety policy needs to be tailored to differing local environments and take account of the PTWs position in society and the economy in a given country – plus the social, mobility and economic opportunities that safer motorcycling can bring to such societies. IMMA strongly supports the sharing of best practice, which can be applied or adapted where appropriate to the local situation of traffic and usage patterns.

▲ PTW characteristics

PTWs excel in providing convenient, low cost personal mobility, which offers riders shorter journey times, while generating fewer emissions, and using less fuel. Thanks to their smaller and lighter profile, PTWs occupy less space and cause reduced wear and tear on road infrastructure compared to other forms of transport. **For these reasons and many more, PTWs support the lifestyle and mobility needs of a growing number of people around the world. In many developing countries they are important to local economies and businesses.**

It is important that policy makers recall the many benefits PTWs bring to their riders and to wider society, instead of considering these vehicles solely as a policy problem.

Convenient Mobility

PTWs enable greater freedom of movement in crowded urban environments and their relatively small size offers advantages for reducing congestion and decreasing the need for large amounts of parking infrastructure compared to cars. PTW usage also reduces wear and tear on road surfaces. Where other means of public transportation either do not exist, or they are inadequate or inconvenient, PTWs can provide an important source of personal mobility. Reduced commuting times allow riders to spend more time with family and friends.

Energy savings

PTWs are engineered for efficient fuel economy and help conserve energy. PTWs, being of lower mass than automobiles, require less energy to manufacture and recycle.

Economy of use

PTWs deliver efficient transport for individuals in terms of reduced time on given journeys, especially in an urban environment. PTWs also often offer a low purchase cost. That, combined with a good fuel economy and low maintenance costs, delivers riders an economical means of greater mobility. This is one reason why PTW fleets are the natural choice in many countries, with many national PTW fleets numbering in the millions.

Unique personal experience

PTW use for sport and leisure has attracted many around the world for the personal benefits they can bring: stress reduction, social interaction with others, the personal and economic perspective of PTW tourism and the pleasure of riding as an end in itself.

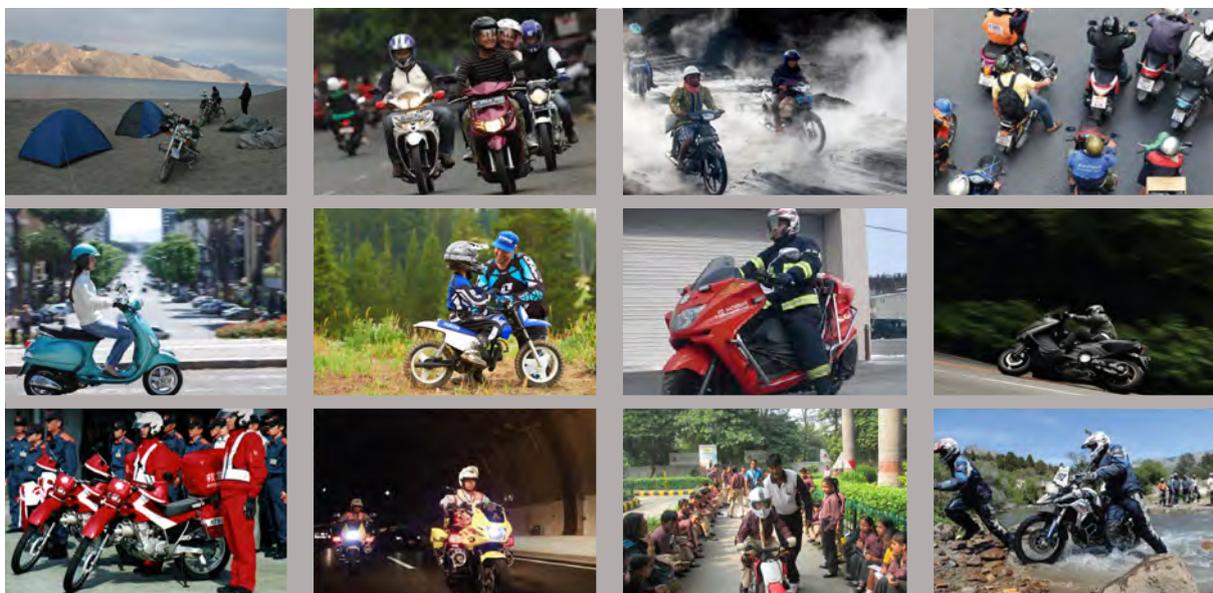
▲ Diversity of owners, usage and patterns around the world

In large parts of the world, PTWs are used by the majority of riders on a daily basis. In some regions, PTWs are also used by specific groups for leisure activities. However, in all regions, PTWs are increasingly used by commuters to provide an answer to traffic congestion.

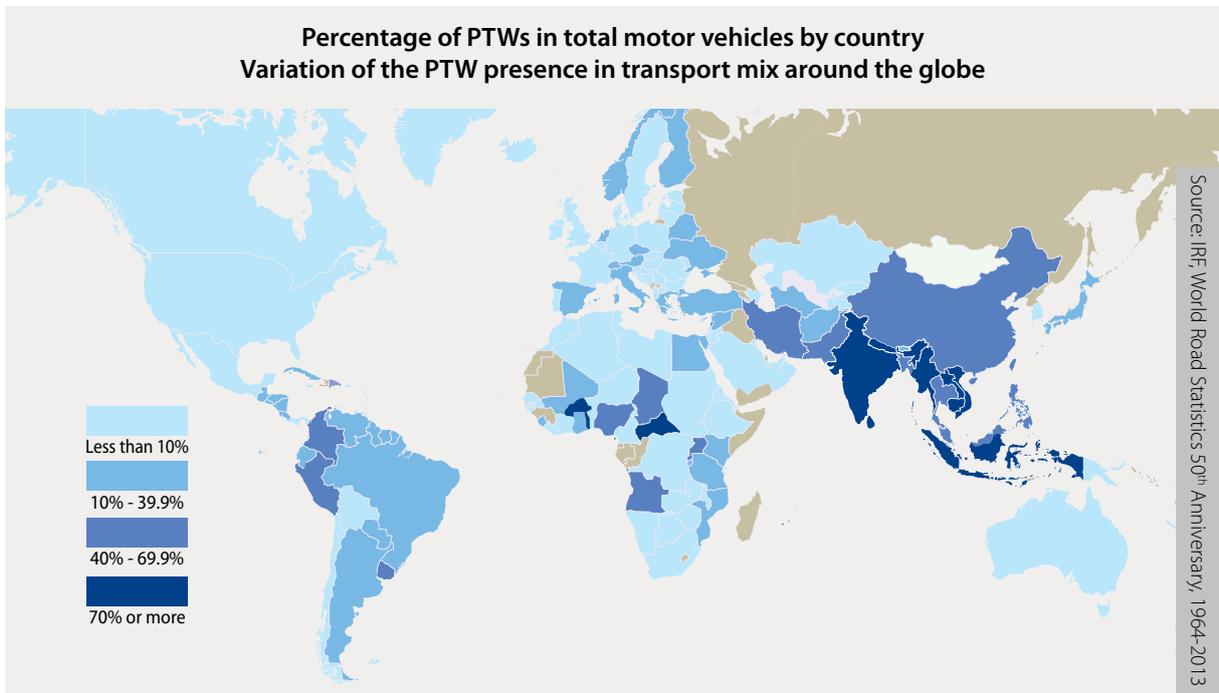
In many countries and in regions like Europe, leisure machines offer a 'cross over' function, also being used for commuting. In the UK for example, the Government estimates that over 60% of PTW distance travelled is for commuting, utility or socially practical purposes.

A toolbox of measures is required to improve the safety of PTW riders within the traffic system. These measures must take into account the specific challenges of PTW traffic, and also consider the variety of PTW users, insofar as some segments may be addressed with particular measures. A strategic approach should consider the most effective combination of measures according to the specific needs of individual jurisdictions.

(OECD - ITF Joint Transport Research Centre draft Report "Safety of Powered Two Wheelers", 2014)

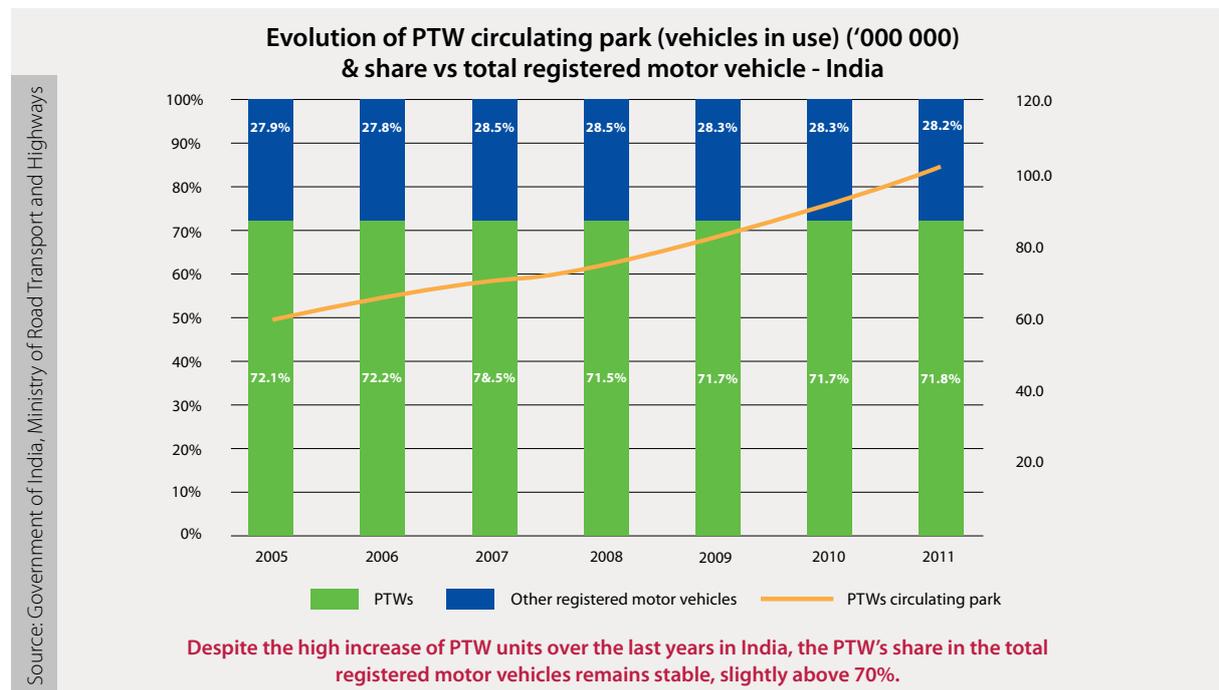


▲ Increasing PTWs' presence in the world



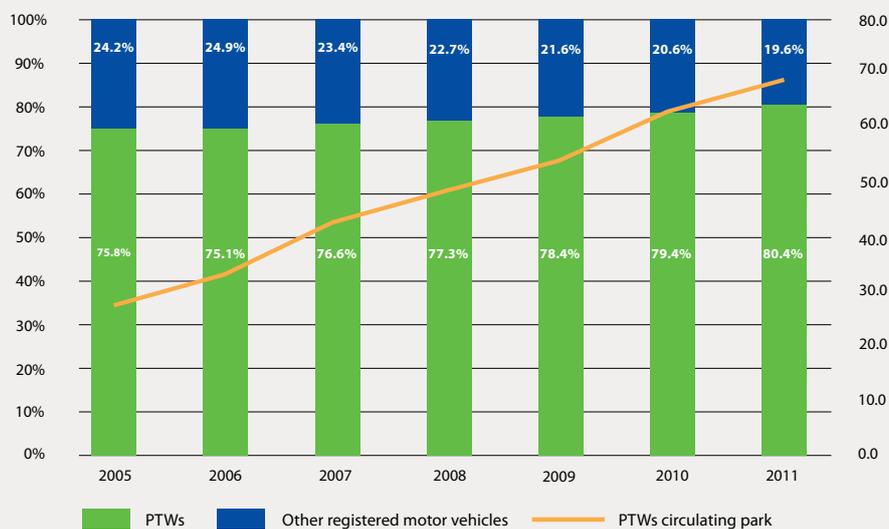
PTWs are the most common type of motor vehicles in many countries around the world - in Asia and Africa in particular. In some regions, PTWs are crucial to national economies. This is because a very high proportion of such economies are organized around this means of transportation: commuting, post, delivery, police, fire fighters, rescue teams, humanitarian workers and volunteers, etc

The share of PTWs on the road compared to other types of vehicle is also extremely high in India (72%) and Indonesia (80%). These trends are also seen in other rapidly developing countries in South-East Asia, Africa and South America.



Source: AISI - Indonesian Motorcycles Industry Association

Evolution of PTW circulating park (vehicles in use) ('000 000) & share vs total registered motor vehicles - Indonesia



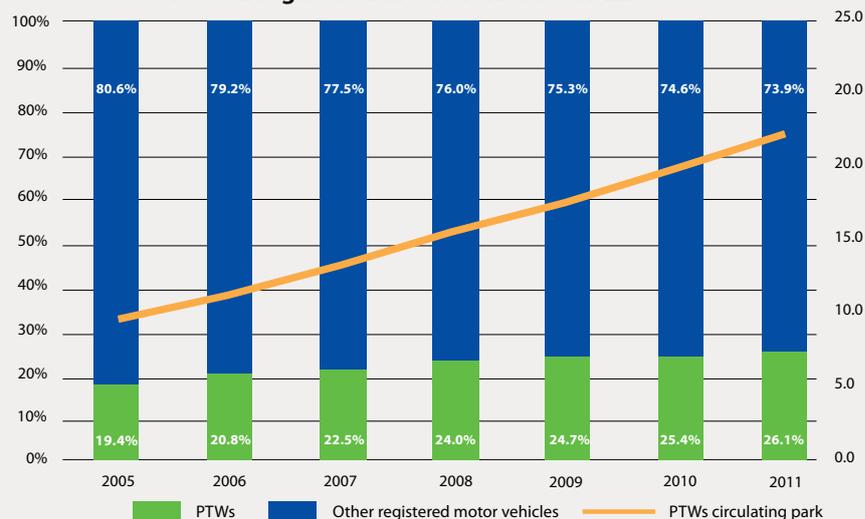
PTWs units more than doubled in Indonesia over the last 5 years and represent now more than 80% of the motor vehicles registered.

In India and Indonesia, the fleet of PTWs increased enormously in 6 years: India +73% (approximately +9% per year) and Indonesia +141% (approximately +16% per year).

In Brazil for example, the total circulating park (vehicles in use) increased with 68% in 6 years while PTW park numbers increased by 126% during the same period.

Source: Abraçiclo, Two Wheels Brazilian Industry Yearbook, 2013

Evolution of PTW circulating park (vehicles in use) ('000 000) & share vs total registered motor vehicles - Brazil

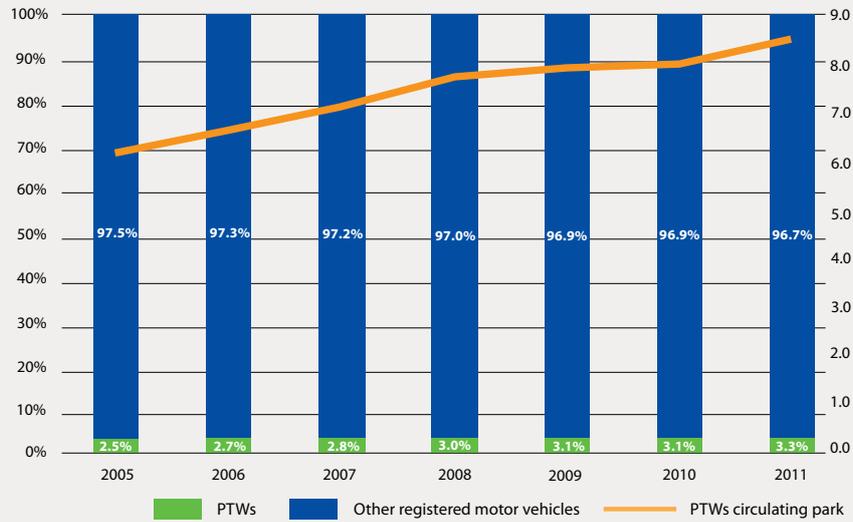


PTWs increased with 126% for the last six years.

There is furthermore a steady increase of the PTW fleet in high income regions: USA +36% and Europe +10% for the period 2005-2011. In Europe 12% of all registered motor vehicles are PTWs, however traffic shares are low in the USA, Canada and Australia where the share of registered PTWs versus all motor vehicles is below 5%.

Source: IRTAD, NHTSA

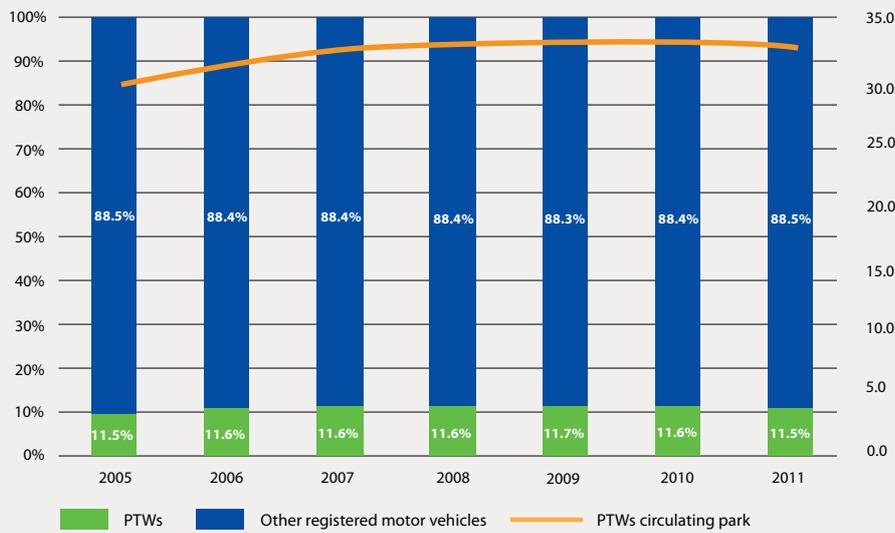
Evolution of PTW circulating park (vehicles in use) ('000 000) & share vs total registered motor vehicles - USA



Similar trends in USA, Canada and Australia: increasing number of PTWs in absolute and relative values. However, PTWs still represent less than 5% of total registered motor vehicles.

Source: IRF World Road Statistics 50th Anniversary 1964-2013

Evolution of PTW circulating park (vehicles in use) ('000 000) & share vs total registered motor vehicles - Europe



In Europe, 12% of all registered motor vehicles are PTWs.

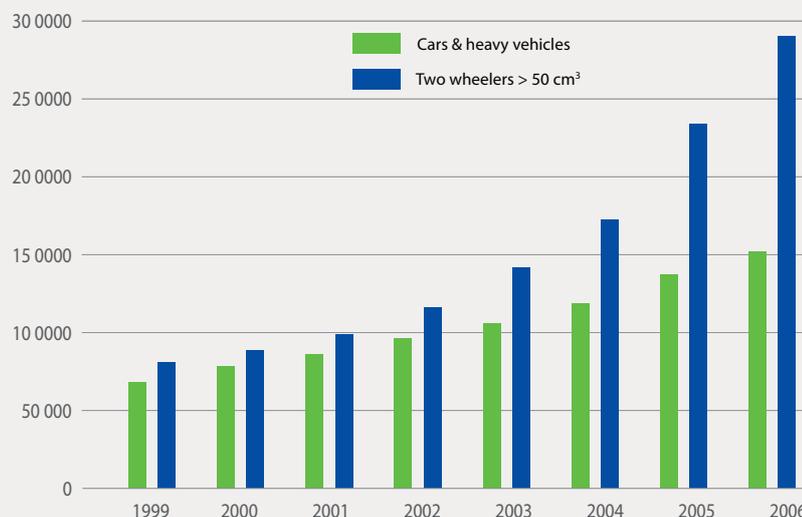
In many Latin American countries, the mass sales and use of the motorcycle has considerably increased in the past 10 years. The share of the PTW fleet in the motorised vehicle fleet varies greatly from 3% in Chile to 52% in Uruguay. In Mexico, PTWs represented only 4% of the fleet in 2011, but the fleet is growing very fast and almost doubled in 5 years. (Source: OECD - ITF Joint Transport Research Centre draft Report "Safety of Powered Two Wheelers", 2014).

Information gathered from a few countries shows that PTWs for use as commercial vehicles have substantially increased over the past decade in big African cities. In particular, the fleet of PTW 'moto taxis' has significantly increased in these cities, as a consequence of a lack of public transport services. (Source: OECD - ITF Joint Transport Research Centre draft Report "Safety of Powered Two Wheelers", 2014.)

This phenomenon has also been observed in some European regional (Barcelona) or national (Paris) capital cities in which small logistic deliveries provided by PTWs and mototaxi fleets are common.

Rapid motorisation in Burkina Faso - Growth of vehicle fleet, 1999–2006 (number of vehicles)

In 1999, there were just over 80 000 Two wheelers with an engine capacity of 50 cc and above on Burkina Faso's roads; during the next 7 years, their number increased almost fourfold.



Source : World Health Organization, 2013, Geneva, Switzerland, Strengthening Road Safety Legislation : A practice and resource manual for countries

▲ PTWs Stimulating Economic Growth

PTWs are the most affordable forms of motorized personal transport in many parts of the world. In various regions, primarily in emerging regions, PTWs are therefore also the most common type of motor vehicle used. Indeed, in South-East Asia, PTWs represent more than 60% of the motor vehicle circulating park. In this region, PTWs are crucial to national economies. This is because a very high proportion of such economies are organized around this means of transportation: commuting, post, delivery, police, fire fighters, rescue teams, humanitarian workers and volunteers, etc.

In high-income countries, the mobility situation is very different, with a higher utilization of personal cars and public transportation. PTWs represent less than 5% of the total motor circulating park in the USA, Canada and Australia. In this context, PTWs are mainly used by specific groups for leisure activities, tourism and sport. Motorcycle tourism has enhanced importance in these regions and can represent notable economic generators for some communities.

In Europe, where approximately 12% of registered vehicles are PTWs, PTWs are used for leisure, sport, and increasingly as an answer to traffic congestion, especially in big cities. The diversity in motorcycle usage reflects the overall geographic, cultural, and historic diversity of EU member states.

The growth since 2005 in transcontinental motorcycling, or 'overlanding' is worthy of note. Increasing numbers of riders use the PTW to visit other countries and conduct extensive tours. Such activities can lead to enhanced tourism 'spend' and benefit to local economies, particularly in the case of guided tours of several PTWs. An added fringe benefit is the wave of positive publicity and journalism that has accompanied much of this activity – often in the mainstream press and TV. This results in a sharing of knowledge about different societies with the public as 'overlanding' riders travel – a distinct social 'good', which can help breach social barriers.

Motorcycling provides quality of life, among other things, through: access to jobs and services, affordable mobility, and the enjoyment of sports, leisure and tourism.

▲ Promoting Advanced Safer Riding through Sport and Leisure

Many riders enjoy the great outdoors, endeavouring on exciting trips to reach remote tourist destinations, or simply going for a weekend trip in the countryside. Professional motorcycle sport is followed by millions of spectators and viewers worldwide, reaching out beyond the riding community itself. Enthusiasts enjoy motorcycle sport at amateur level, where new generations are also taught the positive values of sportsmanship through the numerous events that animate communities around the globe.

Such activities also have the valuable role of engaging young people in sport and personal development. This can be of particular benefit in disadvantaged areas of developed countries, where the social engagement of young people is of major concern. Off road and amateur motorcycle sport provides a valuable opportunity for addressing such key issues.

Motorcycle sports and leisure offer numerous opportunities to effectively reach and influence the motorcycle enthusiast with regard to road safety. Firstly, the sports environment leads to greater interest to choose, and equip the rider with state of the art equipment, to keep a well maintained vehicle and to use protective gear. A sports environment can also impart the importance of rider planning, or the 'systematic approach' to safe riding. Off road sport in particular can be of enormous help in imparting machine control skills.

The sport activities are structured in hundreds of motoclubs and federations around the world, most of them placed under the umbrella of the International Motorcycling Federation (FIM).

The opportunity to improve riding skills on tracks and in off-road environments enables riders to test the limits of their own and their vehicle's abilities under safe conditions. In many regions of the world, manufacturers and sports federations organise track-days and off-road tours allowing enthusiasts to improve their skills with the support of professional coaching. **These sports activities have been a strong contributor to introducing a safety culture among riders and in promoting advanced riding skills.**



▲ The Wider Societal Benefits of Powered Two Wheelers

Motorcycling also contributes towards the wider economic and social goals of society as a whole. In some cases PTWs are core to the delivery of essential public services. **The following examples illustrate the very positive benefits which can be realised if PTWs are accorded proper positioning in social, healthcare and transport policy.**

Health Care delivery

Indonesia, Asia

A healthcare logistics project on the island of Flores, provides 10 small motorcycles for use by healthcare workers in remote rural areas where roads are poor or non-existent. **The ability for basic services to be provided via motorcycles (to a population of over 50,000) has seen a dramatic improvement in basic healthcare indicators since 2002** - www.motorcycleoutreach.org

Africa

Across Africa, the charity 'Riders for Health' has significantly developed the role of motorcycles for healthcare delivery and originated the concept of 'Transport Resource Management' (TRM) by motorcycle. **"Riders" operates in several countries, providing a vital role in healthcare infrastructures. "Riders" has improved health care access for 12 million people across Africa.** A mobilised outreach health worker can see nearly 6 times more people, allowing better monitoring of diseases and dissemination of prevention and control information. - www.riders.org

UK, Europe

"Blood Bikes" have been a feature in the UK since 1969. In recent years the number of blood bike groups has grown significantly and there are now hundreds of motorcyclists who freely volunteer their time to this service. There are times when blood, or other medical items need to be transported urgently because a patient's life is at risk.



Vaccination campaign, Motorcycleoutreach, Indonesia

A “blood bike” can be relied upon to respond quickly and move with ease through busy traffic, even if it is not fitted with emergency lights and sirens. All the groups promote good practice among their volunteer riders, who hold an advanced riding qualification to ride on a marked-up “blood bike”. <http://www.bloodbikes.org.uk/index.php/why>

PTWs’ importance in the event of natural disasters

Indonesia, Asia

The eruption of Mount Merapi in 2011 affected a multitude of small villages including Jumoyo Village with a total number of 7,376 inhabitants. **Motorcycles were used for rapid delivery of mobile health services** - <http://satu-indonesia.com/news/219/14>

Japan, Asia

PTWs were able to provide significant support to recovering areas of the Great Hanshin Earthquake (1995) and the Great East Japan Earthquake (2011). **The authorities and large numbers of volunteers used motorcycles in these crises because of their great mobility.**

Even with blocked roads, collapsed buildings and mountains of debris, motorcycles managed to negotiate the rough road conditions and cramped spaces. PTWs were used to send messages and information, to transport injured people, to deliver basic supplies, and to conduct numerous emergency relief activities immediately after the quake. Moreover, when the gasoline supply network failed, the subsequent severe fuel shortages meant that highly fuel-efficient motorcycles proved extremely valuable.

General

Motorcycles are also used by public authorities, police, ambulance and breakdown services in many countries around the world. They are also sometimes used by traffic managers looking to quickly reach the source of a given transport problem on the roads. Traffic information reporters are also known to utilise PTWs in their work.

▲ PTWs as an Urban Mobility Solution

The motorcycle circulating park is increasing at an impressive rate in urban areas because of the convenience of PTWs and their advantages in terms of door to door mobility, flexibility, parking, costs and fuel consumption.

Compared to other road vehicles, PTWs benefit from intrinsic advantages and even in countries and regions in difficult economic conditions PTWs represent an economic and efficient means of individual mobility.

Global society faces an on-going and worsening problem of traffic congestion and the apparent inability of traditionally accepted alternatives to solve the problem. This is likely to be enhanced and become more urgent against the background of the increasing 'urbanisation' of the global population. **Embracing the PTW as a tool in policies to mitigate traffic congestion and to meet the challenges of urban mobility, could represent a considerable step toward sustainable urban mobility.**



The following examples demonstrate some of the reasons people choose to ride PTWs around the world:

Small shift from cars to motorcycles, great benefits – Belgium, Europe

A study published in 2012 by the University of Leuven considered the impact of a relatively small shift from cars to motorcycles for a heavily congested urban area in Belgium. Modelling showed that if just 10% of drivers swapped their cars for motorcycles, the time spent in traffic would decrease by 40%. When 25% of car drivers switched a congestion was eliminated entirely. The time benefits on the Belgian highway network were estimated at 50 M€/year.

http://acem.eu/images/stories/doc/pressreleases/2011/PTW_Belgium_Study_FEBIAC_ENG.PDF

100 million additional KM made by PTWs – Paris, Europe

A study was conducted in Paris to consider the contribution of two wheeled motor vehicles in this large city. The study revealed that 100 million additional passenger km were made by PTWs in 2007 compared to 2000. The increase was due to the shift from public transport (53%) and from private cars (26.5%). The shift resulted in a positive cost/benefit ratio with a €115 million improvement in prosperity being registered. This significant switch to PTWs occurred through natural modal shift and not as the result of any particular campaign by the public authorities. The study concluded that PTWs are a valuable solution for personal transport in urban areas where congestion is a problem. The study also concluded that compared to the bus and other public transport, PTWs are a mode of transport which lends itself to the high flexibility requirements of individuals' mobility.

http://www.acem.eu/images/stories/doc/mobility/PTW_study_Kopp_Paris_EN.pdf

Wheels 2 work – United Kingdom, Europe

The 'Wheels 2 Work' government funded scheme has helped several thousand, mainly young people to have the means to travel to work since it began 16 years ago. This award winning scheme has focussed on loaning mopeds to people in mainly rural areas, who would not otherwise be able to get to and from work.

Commenting on Wheels to Work, Prime Minister David Cameron said: "Wheels to Work does a great job of tackling the basic issue of making sure everyone who needs to travel to a job is able to do so. This is an invaluable service without which many of these young people would have to move away from their friends and families. It also helps young people to find employment and stay in the rural villages where they have grown up which is important in maintaining these diverse and vibrant local communities."

Parking places for PTW riders – Spain, Europe

Barcelona City Council has introduced several measures to improve the city mobility and accommodate the growing number of PTWs. According to the statistics, 28% of private motorized transport in Barcelona is comprised of PTWs, with more than 248,000 trips made per day. One of the Council's measures was the provision of 40,000 parking places for PTW riders. www.areaverda.cat/en/types-of-spaces/motos/

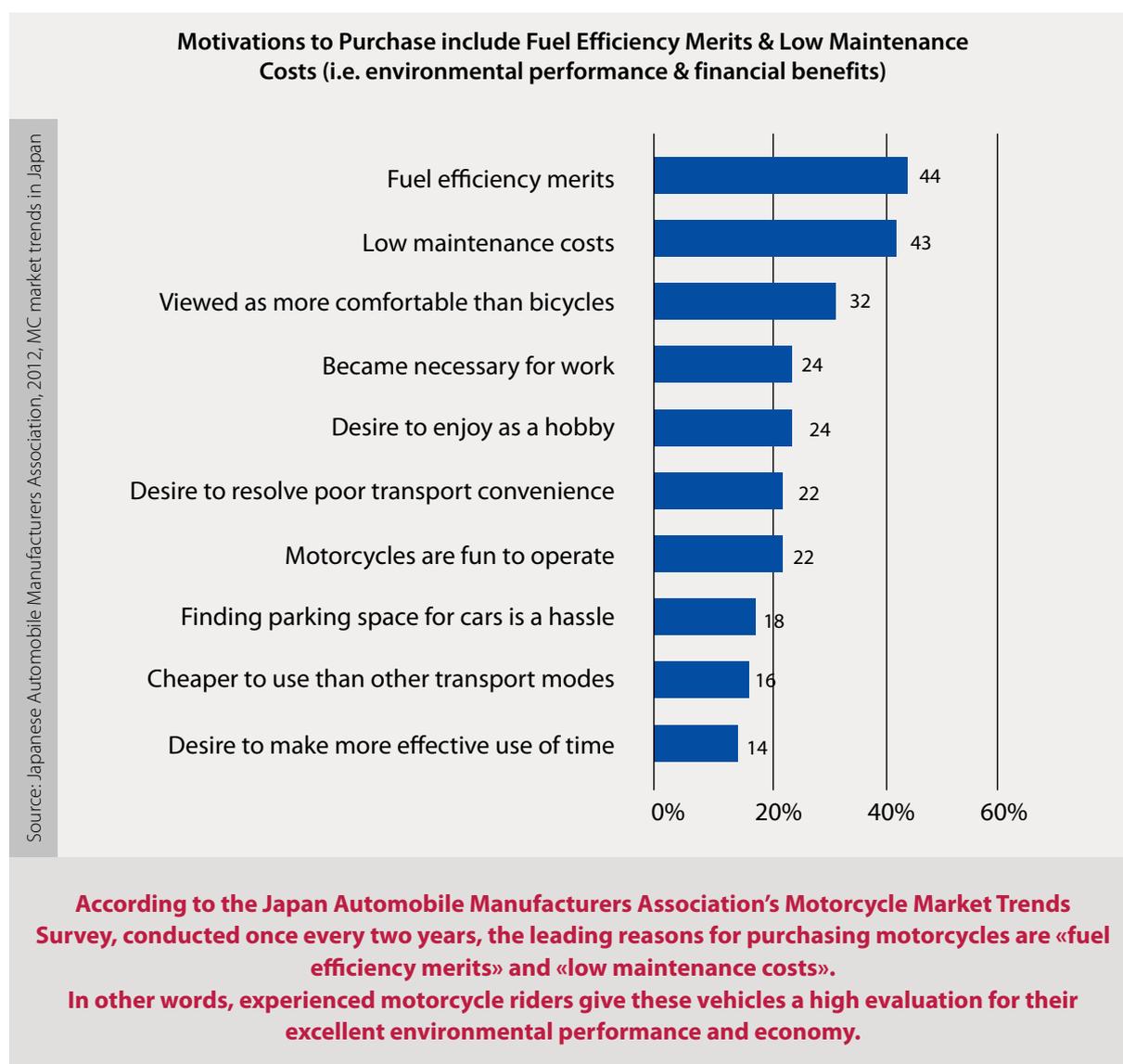
PTWs substitute for public transport – Brazil, Latin America

As in many Latin American countries, the growth of mass sales and use of PTWs has been more recent. In 2012, the total number of motorcycles in Brazil was above 16 million, representing 26% of all vehicles in the country. The most common reasons for buying a PTW are: as a substitute for public transport (60%); for pleasure/leisure (19%), as a mode of transport for reaching work (16%). 10% of people use PTWs as a substitute for their automobile. The boom of motorcycles can be also explained by the increase of people's purchasing power, the availability of credit

and the fact that two-wheeled vehicles are relatively inexpensive and agile for congested city streets. (OECD - ITF Joint Transport Research Centre draft Report "Safety of Powered Two Wheelers", 2014).

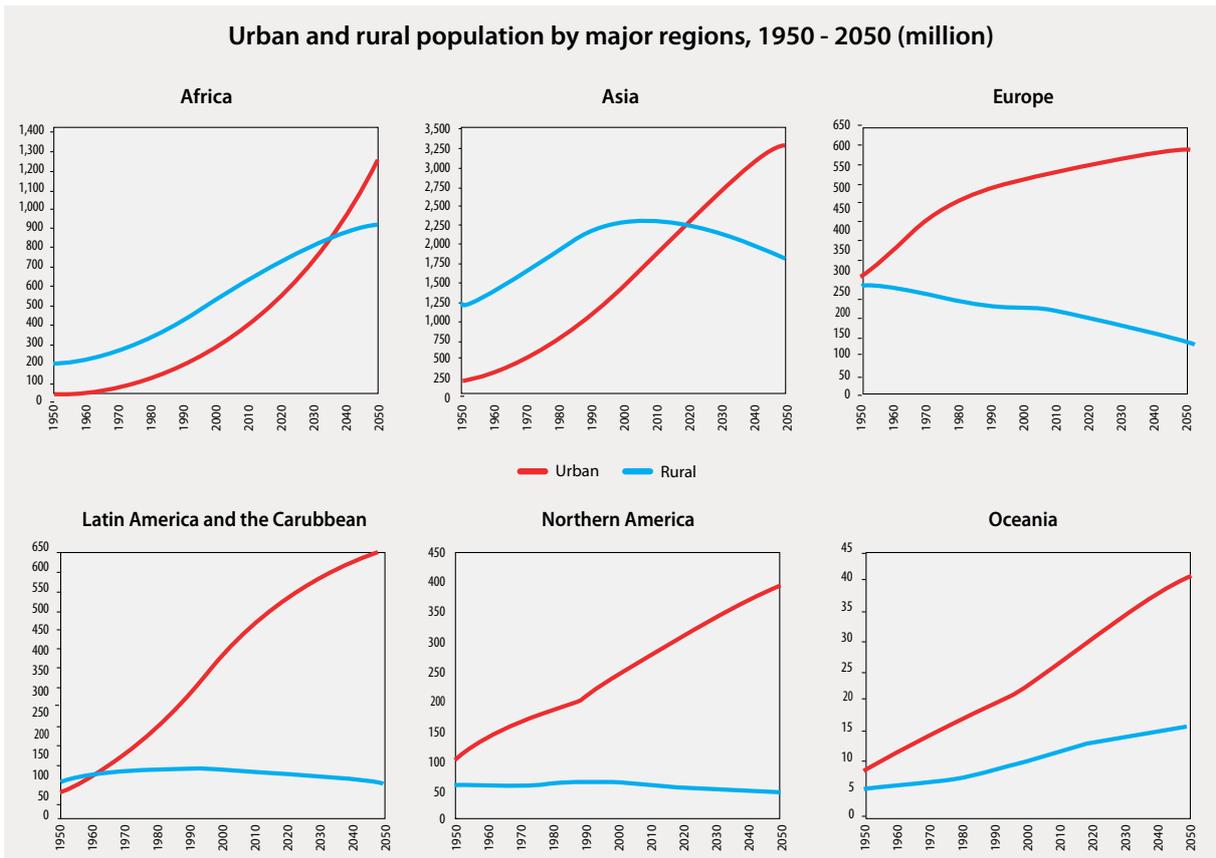
PTWs - most efficient option on both congested and non-congested routes – Japan, Asia

A simulation study was carried out on the efficiency of different transport modes in urban traffic conditions in Tokyo, in 2013. The study explored the travelling speeds of different transport modes (PTW, cars, bicycles, trains and buses) on congested and non-congested routes. When a specific percentage of vehicular traffic on congested main arteries in Tokyo was hypothetically replaced by motorcycles (assuming specific real-world use purposes), thereby increasing the ratio of motorcycles on the road to between 9 and 18%, average traffic flow speed, as a result of reduced congestion, increased to over 20 km/h. The simulation results indicated that motorcycles offer the most efficient option on both congested and non-congested routes (in particular, PTWs from 51cc to 125cc). It has been concluded that motorcycles are the most efficient vehicles for urban transport in a big city. (Motorcycle Market Trend Survey (2011)", <http://www.jama-english.jp/release/release/2012/120404-4.html>; http://release.jama.or.jp/sys/news/detail.pl?item_id=1554)



▲ The importance of PTWs will continue to increase worldwide

In all regions of the world, more and more people are living in cities. The UN projects this trend to continue in the coming 40 years. Only in Africa and Oceania will rural populations continue to increase during the same period, albeit at a lower rate than the urban population. In 2050, in all regions of the world, a majority of the population will live in cities.



The United Nations projects that more than 60% of the world's population will live in urban areas by 2050 while it was less than 30% in 1950.

Source: United Nations, Department of Economic and Social Affairs, Population Division: World Urbanization Prospects, the 2009 Revision. New York, 2010

▲ Urbanization trend & impact on PTWs

In high-income regions, cities continue to grow resulting in more congestion and saturation of parking facilities. Consequently, more attention is given from governments to environmental pollution and emissions.

It can be foreseen that use of PTWs will continue to grow due to:

- Their ease of movement in crowded urban environments;**
- Smaller parking areas needed;**
- Reduced environmental footprint;**
- Benefit of a personal door-to-door solution.**

In emerging regions, cities will also significantly grow as a result of the urbanisation trend. The United Nations projects that more than 60% of the world population will lie in urban areas by 2050 while it was less than 30% in 1950.

In these rapidly growing cities, public transport is not always well organized or adequate in terms of capacity, frequency, available routes, or reliability. Personal average income is increasing and also the need for personal mobility solutions. **PTW usage is expected to steeply grow due to:**

- Their relative low purchase cost and low fuel consumption and increasing personal average income;**
- Limited public budgets and the lack of flexibility in public transport systems remaining obstacles;**
- PTWs often being the only affordable means of motorized transportation for the household;**
- The increasing need for personal mobility solutions for commuting as a result of economic development.**



Chapter 3: Creating a favourable environment for safer motorcycling: a four stage strategy

There would be many benefits, in terms of mobility and traffic management as well as traffic safety, in a better integration of PTWs into mobility plans and in the development of national and local transport strategies”

(OECD - ITF Joint Transport Research Centre draft Report “Safety of Powered Two Wheelers”, 2014)

IMMA's recommended approach to improving road safety across the world can be summarised in a four stage strategy:

- Public Policy
- Infrastructure
- Training & Education
- Technology Advances

Each of these areas play a vital role in improving safety for PTW riders.

The four stage strategy

1. Public Policy - Incorporating PTWs into Transport & Safety Public Policy

1.1. A holistic Road Safety policy should include PTWs

All countries should be strongly supported in integrating a strategic motorcycling framework into transport planning in order to achieve a better traffic system design.

This will allow safer operations, addressing users' responsibilities in light of current knowledge and best practice.

International and regional institutions have an important role to play in encouraging actions at national level that will lead to the adoption of realistic and achievable holistic PTW safety action plans. Such plans should involve major stakeholders and the active participation of industry as part of their development.

In order to maximise the success of such plans, government policy needs to properly 'mainstream' motorcycling as part of their overall transport policy. This inclusive approach would allow the proper development of measures which would improve safety, support riders and help realise the positive potential of PTWs for society as a whole.

The success of the transport policy depends largely and considerably on a systematic approach, without favouring arbitrarily one or the other transport mode, and at the same time applying realistic and economically viable principles, such as:

Fair and equal access between and within ALL transport modes.

Freedom of choice by users/business and accordingly the respect of rights and choice to select the most appropriate transport mode for their mobility needs.

Transport and mobility efficiency, encouraging the most suitable and effective mode of transport according to the circumstances.

Integration of motorcycles, as well as other vulnerable road users, in transport and urban policy plans.

Focussing policy merely on supporting public transport, walking and cycling, denies the opportunity to create fully rounded transport policies, which are relevant to all who need to use transport for differing purposes and in widely varying circumstances. This narrow approach to transport policy also fails to maximise the opportunities that exist to reduce urban traffic congestion and pollution – an area where PTWs can play a significant role.

Ignoring PTWs in transport policy also has the added negative consequence of sustaining an environment for PTW users which is subject to greater vulnerabilities than should exist, and opportunities to improve safety are therefore lost.

Not including motorcycling positively in transport policy because of safety concerns actually becomes a self-fulfilling prophesy by the proponents of such a view, as PTW safety then remains unaddressed in the holistic manner that it should be.

1.2. Recognition of the economic and social contribution of motorcycling

Improved access for motorcyclists, and explicit recognition of the role of motorcycling, in transport policy will encourage economic and social benefits, including reduced overall transport costs to individuals and business, plus increased mobility and lower CO₂.

An expanding motorcycle industry means job opportunities and economic progress. This industry contributes to growth in a wide range of related sectors, such as parts suppliers, mould makers, machining, product 'finishing' and the protective clothing and helmet industries. This in turn provides careers, not only to those who build motorcycles and their components, but also to a wide range of logistics, transportation, sales, maintenance, motorcycle equipment businesses and service support businesses and industries.

The PTW sector is an important part of local business and economy in developing countries in particular. In developed nations sport has positive economic impacts in areas where activities are held. By way of an example, motorcycle sport in the UK was estimated to contribute £0.75billion to the UK economy in 2010.

Although figures vary from region to region, especially for the retail sector, it is estimated that worldwide up to four million people are employed by the PTW industry. Motorcycling and the industry is therefore an important part of global efforts to realise economic growth as the world emerged from the economic downturn after 2008.

Increased sales and market size mean economic growth, more jobs and more income to the state, factors that should be recognised and welcomed by government and society.

In order to support such growth, it is clear that much needed safety actions for PTWs need to be strongly linked to other policy actions to support this mode of transport and leisure, thus enabling motorcycling as a whole achieve its full economic and social potential.

1.3. Adapting Policies to Local Situations

It is important that safety policies for PTWs do not merely imprint developed countries' initiatives onto developing countries' situations. This is because all too often in developed countries an approach has been taken which involves little more than restricting access to PTWs, coupled with strong regulation of PTW use.

Such an approach may be popular among some road safety academics, Governments and safety lobbying organisations, but it fails to address many opportunities to reduce casualties that exist through integrating PTWs in wider transport policies. This is an extremely important consideration in countries where PTWs are important to society and the economy.

Without a tailored, holistic and dynamic approach to the already important economic and social role of PTWs in developing countries, this 'developed country' view of PTW safety is likely to lead to unintended economic and social consequences.

Any temptation for a Government to implement a 'quick political fix' to PTW safety, through 'importing' a restrictive policy from elsewhere should be avoided at all costs.

For example, simply banning the use of PTWs in cities could create a crisis in public transport capacity in those countries not in a position to develop advanced public transport solutions.

A further example would be a complicated, bureaucratic and expensive licensing regime which discourages PTW riders from seeking training and licence testing, a safety measure that would work against its stated intention.

It is important to remember that **'one size does not fit all'**. Road safety policy towards motorcycles and other transport modes needs to integrate with local patterns of usage and be sensitive to the role that PTWs play in local societies – plus their importance economically and socially.

To design integrated, targeted and effective policies, safety issues should be 'pre-audited' and assessed by all important stakeholders: road operators, policy makers, legislators, road users, industry and media.

It has to be recognised that several factors (in addition to helmet wearing) have a key impact on both motorcycle and other road user safety. Such factors include: infrastructure, road safety education, licencing and training of riders and drivers, vehicle maintenance and public policy.

IMMA strongly believes that PTW safety can be enhanced only by applying an integrated comprehensive approach and by involving policymakers and other relevant stakeholders at global, regional and national level working together towards the creation of a favourable environment for safer motorcycling.

This will ensure that local needs and differences would be successfully addressed.

Such an approach needs to involve all stakeholders with an influence on road transport including: education, awareness raising and training of PTW riders, car and truck drivers; the planning and building of infrastructure which is safer for preventing or mitigating PTW accidents; policies which account for PTW riders.

Best Practice Example: The Victorian PTW Strategic Action Plan, Australia

With such significant increases in the numbers of PTWs on Victoria's roads, the need has been identified for greater consideration of PTWs in road use and transport policy development and planning. It has been acknowledged that those working in these fields need to become more aware of the needs of PTWs and the role they can play in the transport network. In an environment where PTWs are an increasing component in Victoria's transport mix, the plan now seeks to identify initiatives and actions that will:

- significantly reduce the number of riders and pillion passengers killed or seriously injured
- ensure that PTWs are given appropriate recognition in transport and road use policy and planning

The four stage strategy

2. Infrastructure - Committing to Safer Infrastructure

In the last 10 years, there have been great improvements in the design and maintenance of roads and road features in the developed world. Regional initiatives under the International Road Assessment programme among others have helped point out the continuous need for validating the importance and design of crash barriers, the absence of objects on the side of the roads, and the importance of signage to warn road users of complex and hazardous situations ahead.

However, many challenges remain – particularly in developing countries where many roads are unpaved, road user licensing systems undeveloped, rider training virtually non-existent, and administrative structures in a 'fledgling' situation. This in itself is a key reason why the 'one size fits all' approach is not appropriate and a more holistic approach is needed.

A number of publications have been created through collaborative efforts by government officials, road design engineers and industry experts to identify specific issues of attention and to improve riding conditions for PTW users.

This shared expertise has provided best practices which can be adopted in other countries or regions. These lessons and best practices need to be further promoted and disseminated to infrastructure planning officials in the developing world.

While no single infrastructure or road design change can be singled out, a combination of improvements have assisted in providing safer roads for PTW use and there are some proven and tested best practice examples, including inter alia:

- Inclusion of PTWs in infrastructure policies
- Improvement and maintenance of road surface conditions (including avoiding poor quality road building leading to rapid deterioration, as can be seen in parts of West Africa and elsewhere)
- Regular road safety audits to assess safety levels of both existing and new road infrastructure projects (EU/USA/ Others)
- Quality standards for unsealed roads (even 'Grade A1' 'large chip' gravel roads are often hazardous for motorcycle users – firmer types of unsealed surface should be used and regularly graded and rolled. This problem applies worldwide)

- Standards for marking or signing road hazards, plus illumination at night of dangerous hazards
- Bus lanes which allow PTWs
- Safe roadside barriers which are motorcyclist friendly
- Advanced stop lines at traffic lights for riders
- Remedial action towards black spots, with special attention to intersection design and traffic signs dedicated to warn riders at places of recurring accidents
- Consideration of motorcycles in addressing traffic issues, land use and parking
- Consideration of motorcycle users in design and construction of tolling plazas on motorways

Infrastructure is by far one of the most important issues for motorcycle safety in developing territories in particular. Adequate maintenance of roads and infrastructure should remain a priority for authorities, even in a context of economic difficulty.

- *Motorcycles are more likely to be involved in a fatal collision with a fixed object than other vehicles. In 2011, 23% of the motorcycles involved in fatal crashes collided with fixed objects, compared to 18% for passenger cars, 13% for light trucks, and 4% for large trucks (NHTSA - National Highway Traffic Safety Administration, "Traffic safety facts 2011 Data, Motorcycles", USA, May 2013).*
- *Accidents caused by the infrastructure account for 8% of the total. Poor conditions of many roads and the fact that PTWs are often neglected by transport plans are the principal reasons for this situation. Roadside barriers were found to present an increased danger to PTW riders, causing serious lower extremity and spinal injuries, as well as serious head injuries. (ACEM, "MAIDS – In-depth investigations of accidents involving powered two wheelers", Europe, final report 2.0, April 2009).*
- *The quality of road surfaces, the condition of the infrastructure and obstructions limiting riders' vision played a very important part in urban accidents. (ACEM, "MAIDS Urban Accidents Report", Europe, September 2009).*

Additionally, transportation planners should consider motorcycles in addressing traffic issues, land use and parking.

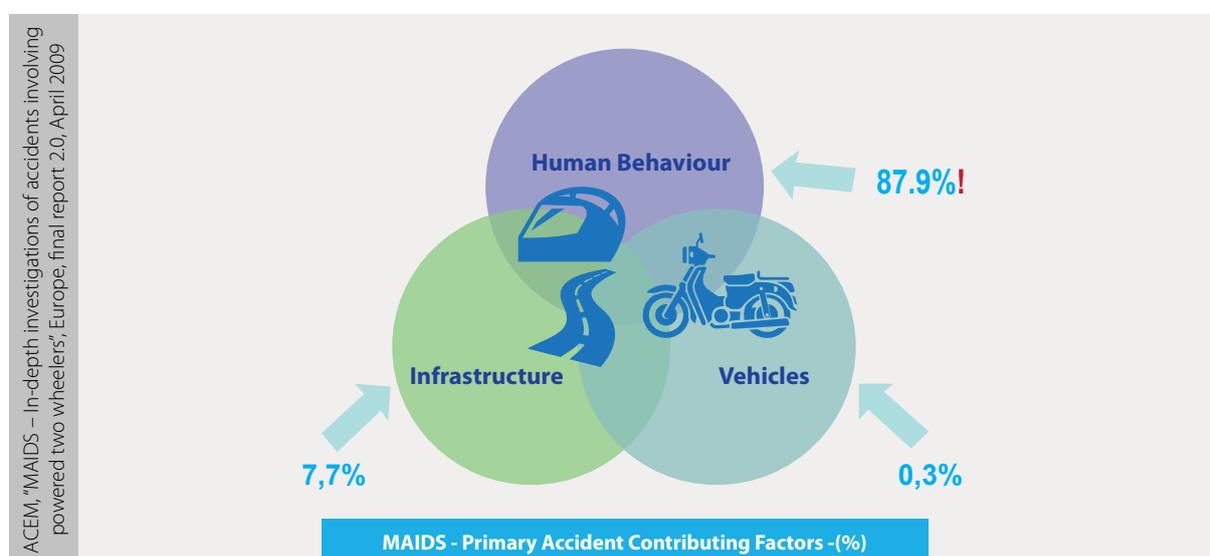
- *"The important role that road infrastructure can play in reducing injuries among all road users, including pedestrians, cyclists and motorcyclists. It recommends that governments implement regular road safety audits to assess safety levels of both existing and new road infrastructure projects.": ("Global status report on road safety 2013: supporting a Decade of Action", Geneva, Switzerland, World Health Organization).*
- *"PTWs are very sensitive to the road and traffic environment, including infrastructure design, maintenance and interaction with other road users. Due to this sensitivity, defects on the layout are likely to create more difficulties on PTW riders than on operators of other motorised vehicles." (OECD - ITF Joint Transport Research Centre draft Report "Safety of Powered Two Wheelers", 2014).*

The four stage strategy

3. Awareness, Education and Training for all Road Users

Human error – major accident cause

The MAIDS Study, "Motorcycle Accidents In Depth Study" found that the major accident cause was human error - in 87.9% of all accidents. Infrastructure is the main causation factor in 7.7% of accidents and vehicle related in only 0.3% of all accidents. From this research, it can be assumed that the **Human Factor is of critical importance to any efforts to improve road safety for PTW riders and therefore encouraging behavioural change should be at the forefront of all activities and initiatives related to human factor.**



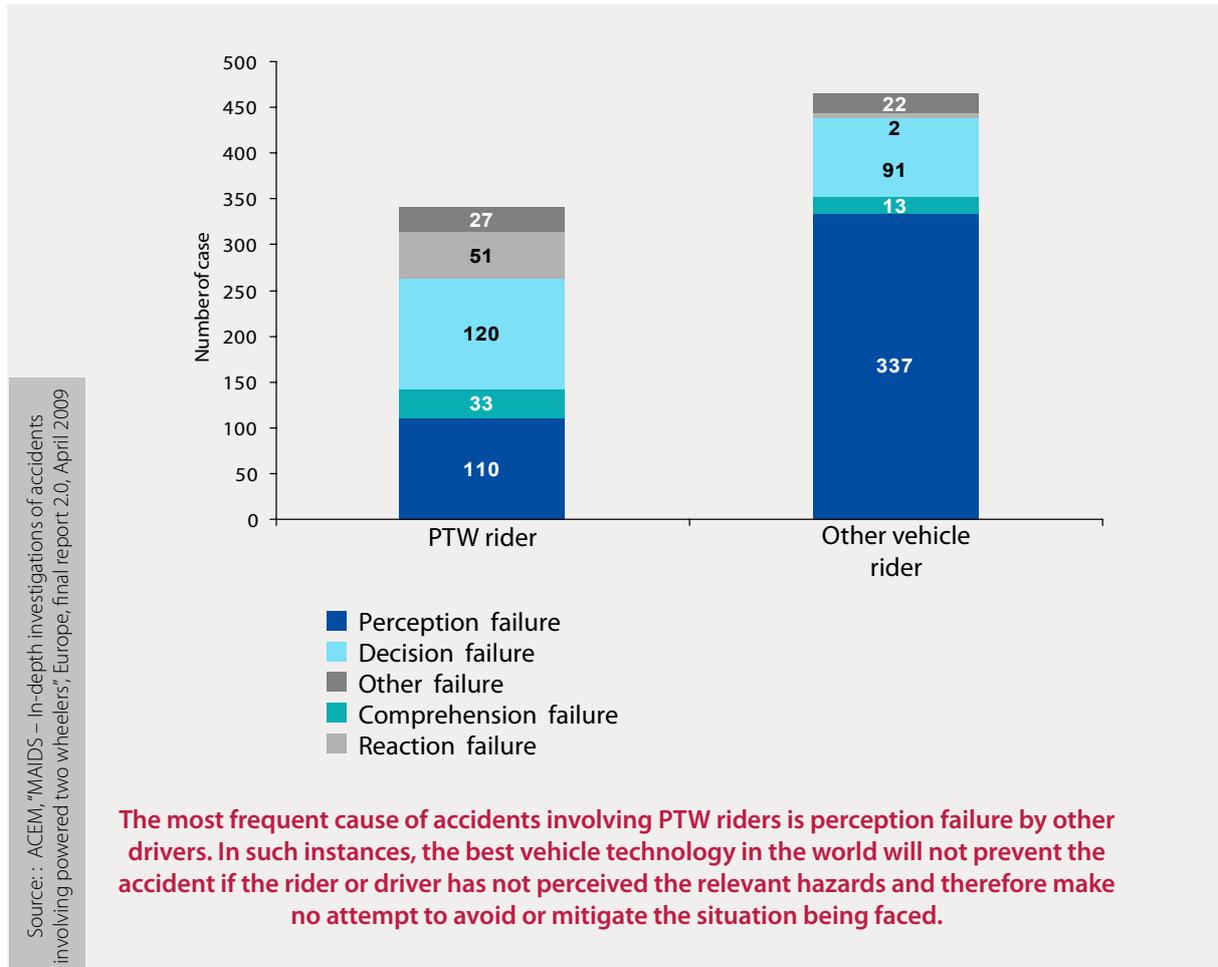
Other conclusions drawn from the MAIDS data were:

- Other vehicle drivers are largely responsible for PTW accident causation - 61% of the multi-vehicle accidents
- However, PTW riders are responsible in 52% of fatal accidents cases.

It would therefore be appropriate to place emphasis on training and educating not only of PTW riders, but also of other road users who may be involved in or even cause an accident with a PTW.

3.1 Awareness Raising for All Road Users

Greater emphasis is needed in the licensing curricula of all vehicle types to ensure more awareness of the behaviour of other road users. This would not only benefit PTW riders but also, for example, raise awareness among heavy goods vehicle (HGV) drivers to look out for cyclists when turning, and for car drivers to understand the difficulties HGVs have when braking or accelerating when fully laden. There is also the need to explain the potential hazards from misjudging the speed and approach of a PTW.



- In 70% of the accidents involving PTW riders car drivers were the primary causation factor - whereas motorcycle riders are exposed to a higher risk of being a victim in an accident (ITARDA - Institute for Traffic Accident Research and Data Analysis, "Information n°91", November 2011, Japan)
- Other vehicle drivers, who also have a motorcycle licence are much less likely to commit a perception failure in relation to the oncoming motorcycle (or misinterpret its distance and speed) than 'other vehicle' drivers who do not have a motorcycle licence (MAIDS, Europe)
- Car drivers overlook riders - in over 80% of crossing collisions and collisions while turning right, the cause was a delay in the car driver noticing the motorcycle and in nearly 70% of instances this delay was due to an insufficient check on the traffic (ITARDA - Institute for Traffic Accident Research and Data Analysis, "Information n°91", November 2011, Japan)

Greater emphasis is needed in the licensing curricula of all vehicle types to ensure more awareness of the behaviours of other road users.

3.2. Lifelong Training of PTW Riders

As well as understanding and anticipating the behaviours of other vehicles, PTW riders can also benefit from both pre- and post-license training.

Rider training and education is fundamental to PTW safety. Critical skills can be enhanced for both novice and experienced riders to include hazard perception and vehicle control. IMMA members are actively involved in rider training and often participate in conjunction with government agencies or working groups on rider education.

Through these efforts, they are able to provide affordable, accessible and effective training to PTW users. The industry will encourage continued outreach to new and existing motorcycle riders on the importance of life-long rider training, including pre-licencing and voluntary post-licencing formulas.

IMMA members consider that training plays a crucial role for enhancing safer motorcycling and they will continue offering high quality and well - tailored voluntary training options across the globe.

Rider training courses vary widely between countries due to the different training requirements, vehicle fleets and training resources. There is also a multitude of countries where organized training does not yet exist.

Initial rider training provides the basic skills and awareness needed for novice riders. Subsequently, more advanced courses provide riders with additional opportunities to increase rider proficiency and safety and hazard perception skills. In addition, a variety of training options are offered within the context of motorcycle sports on dedicated tracks and off-road terrains which allow riders to greatly enhance their skills and control of the vehicle.

Due to the sheer number of two wheeler riders in the Asian region and the limitations of space and suitable facilities, the industry will continue advocating for an introduction of riding simulators in these regions, on a large scale, to help to educate and train PTW riders.

Industry is also willing to work with Governments in this region to assist any efforts they may make to develop sensible, achievable and affordable training strategies.

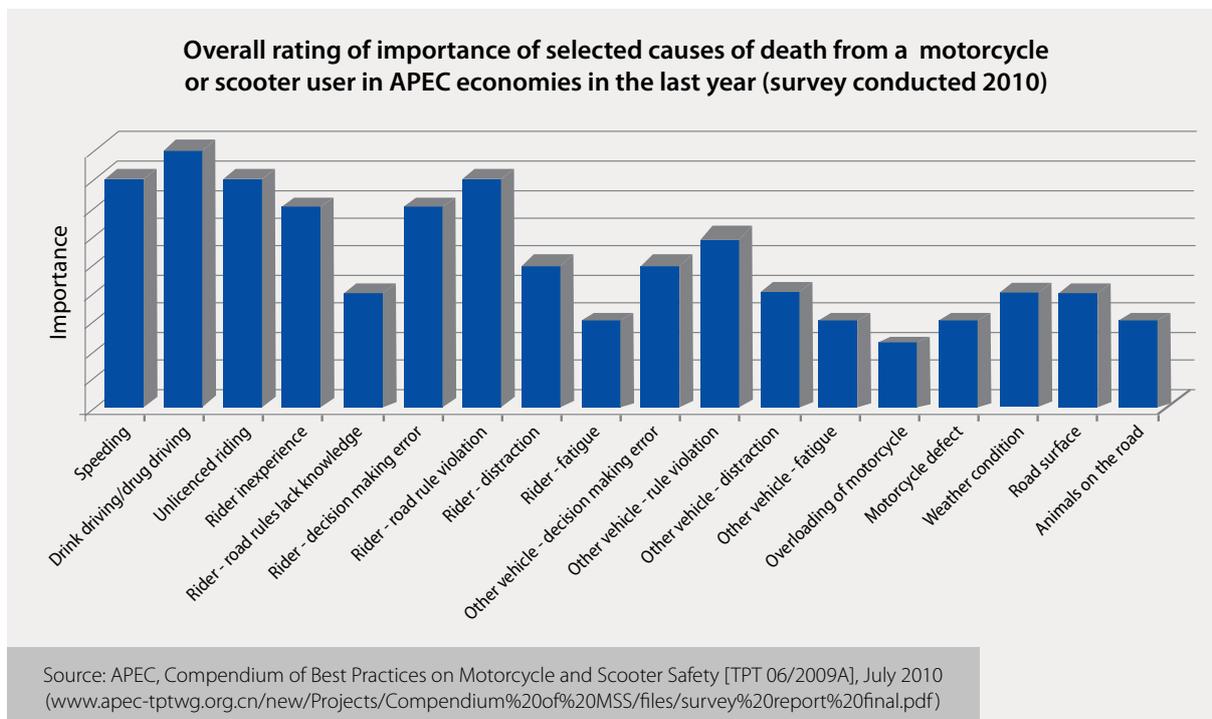
The training should be designed to enhance motorcycle safety by putting the rider's hazard awareness and perception at the core of the training curriculum

3.3. Preventing Impaired Riding

Riding without a proper license, riding under the influence of alcohol or drugs are all considered to be examples of impaired riding.

- *Out of 5,075 motorcyclists involved in fatal crashes in the USA in 2012, 27% (1,390) of the riders were under the influence of alcohol. That is more than 1 in 4 fatal motorcycle accidents attributed to drinking and riding (NHTSA - National Highway Traffic Safety Administration "Traffic Safety Facts 2012 Data, Alcohol-Impaired Driving", USA, December 2013)*
- *In Europe, riders involved in urban accidents were found to be less trained and less skilled than the total number of MAIDS surveyed riders - 47.6% of urban riders did not have an official training, (ACEM, "MAIDS Urban Accidents Report", Europe, September 2009)*
- *In the USA, almost one out of four motorcycle riders in fatal crashes in 2011 were operating their vehicles with an invalid license (NHTSA - National Highway Traffic Safety Administration, "Traffic safety facts 2011 Data, Motorcycles", USA, May 2013).*

- In Cambodia in 2011, PTWs represented 83% of the motorized vehicle fleet and 66% of all fatalities. Excessive speed was responsible for more than 50% of them. Drinking & driving and lack of helmet usage were also major causes of road casualties (“Global status report on road safety 2013: supporting a Decade of Action”, Geneva, Switzerland, World Health Organization).



Reducing impaired riding requires combined enforcement and education. IMMA strongly encourages governments to introduce combined campaigns, education and enforcement on drink and riding, tampering and riding without a proper licence.

3.4. Protective Riding Gear

While protective gear by itself does not prevent a crash from occurring, proper riding gear can reduce the effects of a crash.

IMMA promotes the safety benefits of protective gear considering riders’ specific needs and different climatic conditions within regions of the world.

- Evidence based benefits of personal protective equipment – analysis of MAIDS data base:

Moped riders (Upper Torso and Upper extremities)

Light and medium garment – in 73% of all cases the protective equipment was effective in preventing or mitigating injuries.

Heavy garment – in 93% of all cases the protective equipment was effective in preventing or mitigating injuries.

Motorcycle riders (Upper Torso and Upper extremities)

Light and medium garment – in 69% of all cases the protective equipment was effective in preventing or mitigating the injuries

Heavy garment – in 92% of all cases the protective equipment was effective in preventing or mitigating the injuries.

Light garment= thin cotton; Medium garment= denim, light leather or nylon; Heavy garment= Kevlar, imitation or heavy leather

Protective equipment should also be considered for the riding environment. Good quality gloves and footwear can do much to mitigate accident injury. Basic eye protection is also important.

The benefits of good quality motorcycling clothing are still widely underestimated and there is a need of continuous efforts for encouraging a wider take-up of protective gear amongst riders suitable for their riding environment.

Use of Helmets

Global action for motorcycle safety rightly focusses on helmet wearing. However, this is only one important part of a bigger PTW safety picture. Despite the high safety value of helmets, the creation and enforcement of helmet laws should not be regarded as a simple political 'fix' to PTW safety.

Positive injury reduction rates can be expected from increased helmet wearing rates, but in isolation such a policy can only mitigate the consequences of an accident rather than seeking to prevent the accident in the first place. The highest priority should be given to preventing accidents through integrated policies and by improved safety behaviours of all road users.

Wearing a helmet of a proper quality standard and in the proper way can provide protection to riders to significantly mitigate head injury.

- *Wearing a standard, good quality motorcycle helmet can reduce the risk of death by 40% and the risk of serious injury by over 70% ("Global status report on road safety 2013: supporting a Decade of Action", Geneva, Switzerland, World Health Organization)*
- *Helmets saved 1,617 motorcyclists' lives in 2011 in the USA, and 703 more lives could have been saved if all motorcyclists had worn helmets. (NHTSA - National Highway Traffic Safety Administration, "Traffic safety facts 2011 Data, Motorcycles", USA, May 2013)*

Choosing a helmet should be at the discretion of the rider: it is his responsibility to select the adequate type and size fitting with his/her specific use, climate and economic considerations.

In countries where helmet wearing rates are very high, emphasis should be placed on the correct usage of helmets, with the chinstrap fastened correctly.

Diversity in approach also needs to be recognised. For example, in some of the ASEAN regions, governments are considering the development of an alternative specification of helmets, which are lighter and could be considered more appropriate for use in hot and humid climates. IMMA supports the discussion of this topic at UN level.

IMMA strongly supports the proper use of helmets as part of an integrated comprehensive approach.

The efforts in this area should be orientated towards social marketing and awareness campaigns about the benefits of using proper helmets, and fitting/fastening them correctly combined with effective enforcement.

3.5. Regular maintenance of the vehicles

Periodic inspections reduce the incidence of safety related defects to tyres, brakes and lights, particularly those of which the owner is unaware. Regular checks of vehicles would possibly have a much greater impact in developing countries, where running damaged or dilapidated vehicles can be common on the roads. Countries developing an

inspection regime should adapt regulations to meet national characteristics and needs – not a blanket, 'one-size-fits-all' approach.

For example the very highest standards of Periodic Technical Inspection (PTI) regimes may not be appropriate in territories where incomes and economies are a challenge and the ability of users to afford costly in-depth inspections is absent. In such cases, an initial PTI regime should focus on a basic inspection of the operation of vehicle safety items such as tyres, brakes, lights etc. Such PTI regimes can develop as the local situation evolves in a positive economic and social direction.

Riders should be strongly encouraged to maintain initial construction standards, and their vehicle should undergo regular maintenance and servicing.



The four stage strategy

4. Technology Advances

▲ The motorcycle industry is committed

When developing products, manufacturers strive to achieve the highest standards of construction and technology, taking into account specific aspects of different global markets. New products are subjected to a series of stringent tests that aim to protect the safety of riders and improve environmental performance. In order to implement increasingly advanced regulatory and industry standards, manufacturers need to resort to complex designs, refined construction methods and advanced technologies.

Safety of the products is of utmost importance for IMMA members.

A comprehensive, multi-level quality management system ensures quality in all work processes as well as components and materials, and ultimately - products. But above all, the IMMA members orient their quality management system to the needs of their customers. To strengthen customer trust by offering products founded in safety and offering a new level of outstanding quality, IMMA manufacturers have created a quality cycle that continuously enhances quality at every stage: design, development, production, sales and after-sales service.

Industry has been driving advances in preventive, primary and secondary safety.

Preventive safety aims at improving riding and driving standards. Primary safety refers to functions such as vehicle stability, braking, traction control, innovative ergonomics and chassis designs that improve the rider's control of the vehicle.

As various studies from around the world have demonstrated, the majority of PTW accidents are caused by the driver of the other vehicle who 'did not see' the PTW (rider). Therefore, PTW conspicuity comes to mind when referring to preventive safety. Conspicuity has been and is continuously being improved through advances in vehicle daytime and night-time lighting technologies.

Conspicuity is also anticipated to be improved in the future through electronic devices, whereby the PTW (rider) can be "seen" by the other vehicle through Cooperative Intelligent Transport Systems (ITS).

Industry has also developed and successfully introduced various secondary (passive) vehicle safety improvements. However it is clear that due to the specific nature of two-wheeled vehicles, such as the exposed position of the rider, the possibilities for secondary safety are limited and very complex.

Along with introducing the many new vehicle technologies over the years, additional competencies have been developed and acquired by manufacturers. Examples of such relatively new fields are Intelligent Transport Systems, functional safety of electrically propelled vehicles and safety of batteries for electrically propelled and hybrid vehicles.

▲ Industry is proactive

As a result of the industry's motivation to deliver high performing and appealing products in a competitive environment, manufacturers are proactive in implementing value-added innovative features suited to meet specific regional needs.

Industry has a significant record in developing and introducing a wide spectrum of improvements on vehicles. These include, among others:

Vehicle lighting technologies

Braking systems

Ergonomic design of rider position and controls

Use of light and durable materials

Design and construction of the vehicle frame

Innovations improving overall vehicle stability

Suspension, tires, fuel system integrity.

In addition, as a result of regional and global cooperation between the manufacturers, the industry has initiated a number of new and updated international standards as well as new international UN Regulations and amendments. This is to properly describe new technologies and enable their implementation, with the aim of continually improving vehicle and road safety.

To illustrate some industry policies of proactively introducing improvements at worldwide or regional level, reference is made below to the advancements in:

Vehicle lighting

Braking

▲ Vehicle Lighting

Vehicle lighting technology is subject to rapid technology evolution. The industry has been deeply involved in adapting these technologies to PTWs to improve rider vision, visibility and the lighting signature of PTWs. In addition, various specific concepts for PTWs have been introduced to provide additional lighting to increase vision for the rider during banking/leaning of the vehicle. Thanks to the increasing spectrum of lighting technologies available, including advanced ones such as LEDs, lighting signatures and vision during different environmental conditions are constantly improving.

The lack of conspicuity - being seen and being perceived correctly - has been identified by various studies as a very important factor in PTW accidents. In addition, various researchers have raised concern of reduced conspicuity for PTWs due to Daytime Running Lights (DRL) or driving with headlights-on with cars.

Headlamp-on riding has generally been considered as an important measure to improve the PTW rider's individual safety in most regions in the world. The promotion of this measure by IMMA resulted in its formal introduction in the 1968 Vienna Convention on Road Traffic, with 72 Contracting Parties.

Aiming to support headlamp-on policies, manufacturers developed the Automatic Headlamp-On (AHO) feature on PTWs. The AHO system ensures that the front light is automatically turned on when the engine runs. In 2003, ACEM, the European IMMA-member, introduced AHO as a voluntary commitment and in that same year IMMA introduced a proposal to amend existing lighting legislation at UNECE/WP.29 to include AHO as a standard for motorcycles

in the corresponding UN Regulation. Furthermore, manufacturers continue to develop and introduce additional lighting solutions, with these applying to specific vehicle types and/or to meet local market needs and conditions.

Markets where headlamp-on policies have not been introduced may need to be assessed as part of a process that leads to the introduction of Headlamp On or AHO. Such an AHO assessment may be particularly meaningful in countries with high PTW density (e.g. above 70%) and in which average speeds in the traffic mix are relatively low.

It should however be remembered that PTW conspicuity is strongly related to the behaviour of riders. Whether or not the rider is seen largely relates to the observational skills and behaviour of the other vehicle driver and to aspects of behaviour and planning on the part of the PTW rider. Examples of issues that impact conspicuity are the position of the PTW in the traffic lane, the distance of the PTW to other vehicles within the lane and differences in speeds between the PTW and the surrounding traffic.

▲ Braking

As a result of industry's ongoing work in the area of vehicle stability and braking, the brake/tyre combinations on today's PTWs have very high performance capabilities in a very wide variety of traffic and road conditions.

However, it is important that riders are taught to using the full potential of PTW brakes in a proper way, as incorrect braking can be a contributory factor in accidents.

To introduce a global regulatory framework for braking, encompassing advanced braking systems, IMMA has led the discussion on the creation of a new global technical regulation (UN GTR) on PTW braking under WP.29.

In this new 'GTR 3', the highest levels of performance requirements for PTW braking have been brought together.

Through updating and aligning UN Regulation N° 78 with the GTR, combined with the introduction of UN GTR N° 3 in other countries, these new braking system requirements have received the broadest geographical coverage.



Countries should first apply this important worldwide regulatory standard before considering government incentives for the introduction of policies associated to new technologies (e.g. advanced braking systems).

Over the years, the motorcycle industry has developed and introduced several braking technologies on vehicles, enhancing the effectiveness of these devices and adjusting them to specific manoeuvres and needs. Advanced braking systems encompass different systems, technologies and approaches such as anti-lock brake systems (ABS) acting on one or both wheels, combined brake systems (CBS), rear wheel lift-off protection (RLP) and automatic brake force distribution. Such systems can be present individually or in combination.

To speed up the introduction of advanced braking systems in the European market, ACEM (IMMA's European member) made a voluntary agreement in 2004. This was undertaken in order to contribute to the aims of the European Road Safety Charter. ACEM members committed to introduce, at least as an option, advanced braking systems on more than 50% of street motorcycle models offered on the European market by 2010. This commitment was renewed in 2008, to extend the coverage to 75% by 2015 and the preliminary results indicate that the manufacturers will be in a position to meet the commitment.

While the potential benefits are considerable, it should be remembered that the benefits and limitations of various Advanced Braking Systems vary significantly per type of PTW. The vehicle weight and the vehicle centre of gravity can be very different between models, which can have an important impact, together with the rider's braking behaviour.

Also the typical riding environment and patterns of riding can have a strong impact on the effectiveness of, for example, an anti-lock braking system. This can often be the case in relation to off road environments, or roads which are constructed mainly of dirt, gravel or 'piste'. Therefore, manufacturers need to consider factors such as customer expectations, regulatory requirements, intended vehicle usage costs and the primary roads infrastructure when determining which types of systems to offer for a given vehicle in each market.

IMMA additionally emphasises the importance of the education of riders on the benefits and limitations of advanced braking systems. Without proper training, the introduction of advanced braking technology may lead inexperienced riders to demonstrate over-confident behaviour which can reduce or eliminate the desired safety benefits.²

▲ Holistic perspective

As noted in the two examples above, IMMA and its associated manufacturers have a track record of advancing vehicle technology and performance.

It should be remembered that providing PTWs with additional vehicle related options or technologies - or introducing vehicle specific regulation - is not on its own sufficient without a strong and continued focus on rider training and behaviour of the rider. Adequate vehicle maintenance by the owner and attention to the quality of the road infrastructure is also vital.

Enforcement, inclusion in integrated transport policies, plus training and education, as a result of the adequate inclusion of PTWs in mainstream transport policies, are issues that require particular and regular attention. Introduction of new technologies and solutions require education of the customer.

As a consequence, IMMA member manufacturers invest significant effort in educating customers and promoting new safety solutions, in order to allow the market to adapt to new features and technologies. In

² The NHTSA automotive ABS effectiveness study for four-wheelers, provides support for the point above - <http://www-nrd.nhtsa.dot.gov/Pubs/811182.PDF>

addition, IMMA members have been very active at national, regional and international level in promoting PTW road safety with policy makers.

▲ **Future technology challenges - outlook**

Looking ahead, with new technologies evolving and becoming applicable, PTW manufacturers will continue to develop their competencies, and continue to develop the technical performance of PTWs.

Concretely, Intelligent Transport Systems (ITS), such as cooperative systems and Advanced Driver or Rider Assistance Systems (ADAS) are coming into focus. It is apparent there are a number of challenges related to the fitment of these systems on PTWs. This section will provide an outlook on some possible future technologies, and on the associated issues.

▲ **Intelligent Transport Systems (ITS)**

ITS technology provides information and communication technology to transport infrastructure and to vehicles in an effort to improve safety, reduce the environmental impact, and render trips more efficient and comfortable. Besides extensive efforts within PTW manufacturers' in-house R&D departments, there are numerous collaborative initiatives in Europe, the United States, Japan and Korea. These are aimed at developing cooperative or standalone technologies, undertaking feasibility studies and promoting standardisation. These collaboration initiatives involve the vehicle and supplier industries, and governments. Road, telecom, and other technology partners are also involved.

As traffic systems, traffic mix, telecom and road infrastructure quality are very different from country to country and region to region, the solutions that may be successful in the future are likely to be diverse.

As manufacturers cannot be involved in all developments, IMMA emphasises that PTWs should not be forgotten or overlooked whenever ITS are considered in road infrastructure upgrades, and in work on other vehicle types like cars and trucks. Although initial design and development for ITS will primarily be focussed on 4-wheelers, the application of advanced technologies to PTWs, as well as the impact of advanced technologies on PTWs, should be considered in the initial design stages. An example of the lack of consideration of PTWs in an ITS system is the non-opening of barriers at toll-plazas due to the relatively low weight of the PTWs.

It should be remembered that the fitment of ITS on PTWs can be a complex challenge. Vehicle-centered ITS, before application to PTWs, is developed and introduced on 4-wheelers and in particular on commercial vehicles. The application of such technologies on PTWs is in most cases far from a simple carry-over from car technology. This is because the characteristics of PTWs (vehicle size, use, weight, space, balance, dynamics, handling, usage environment) vary considerably and often require many specific adaptations before being applied to PTWs. This multiplies the development challenges.

To illustrate the complexity, Advanced Driver Assistance Systems (ADAS) primarily engineered for use in cars, have the potential to be dangerous if applied to a PTW without modification. Any system not specially designed for PTW which intervenes in the control of the brake, throttle, or steering could severely affect the stability of the PTW and may lead to loss of vehicle control.

IMMA members are working actively on ITS for motorcycles. Some Driver Assistance Systems (DAS) for motorcycles are already on the market, mainly as optional equipment, mostly on high-end vehicles for the time being, due to the additional consumer cost of these systems. These DAS comprise of equipment such

as: ABS, Traction Control, Tyre Pressure Monitoring System, Electronic Adjustable Suspension, Electronic Cruise Control, Gear Shift Indicator/Assistant, Fuel Economy Assistant, Proximity Activation, In-vehicle Navigation System and Riding Mode.

▲ Cooperative Systems

Motorcycle safety, comfort and environmental performance may be further enhanced via vehicle-to-vehicle and vehicle-to-infrastructure communication (V2X). Additional communication frameworks are expected to improve safety in critical scenarios for PTW riders (intersections, blind spots, rural roads, poor visibility areas, etc.).

Vehicle-to-Infrastructure Communication (V2X) will progressively appear in cars in the medium term. In the long term, vehicle-to-vehicle and V2X will potentially address many common PTW accident configurations (54% of PTW accidents occur at an intersection according to MAIDS) and they may offer solutions in certain cases where conspicuity plays a critical role.

Once the necessary infrastructure has been developed and initial economies of scale have been achieved in the car sector, motorcycle safety will benefit from including the PTWs in this connected world. One potential benefit could be the development of a level of electronic conspicuity, which can be shared between riders and drivers of other road vehicles

It is expected that vehicles will be equipped progressively with cooperative ITS and certain regions may be more suited than others to roll out these new technologies. As a number of these systems are in the research phase, their effectiveness, technical feasibility and market acceptance are being investigated.

▲ International standards and regulations need to be promoted and protected

World Forum WP.29

Complementary to the development and implementation of technologies, IMMA has been involved for over half a century in the World Forum WP.29 for the development and maintenance of regulations, together with representatives of governments, type approval authorities, research bodies and other interested stakeholders. At WP.29, IMMA speaks on behalf of the global PTW industry. IMMA ensures that the process of rulemaking in which all decisions are taken by governments, is facilitated through the provision of technical information, argumentation and scientific data, resulting in the development of technical legislation to appropriate levels.

When considering implementation of new technologies in legislation, policy makers should recognize the diversity in PTWs, users and their usage in the different regions where there is a great variety in road infrastructure, traffic conditions, and stages of economic development.

In some cases, before new technologies are considered for mandatory application by government administrations, the application of the latest international standards and regulations should be the first step.

Referring to the four step strategy outlined in this document, it must be noted that whilst technical advances in motorcycles will continue to play a role in rider safety, the primary focus must be placed on public policy development, rider behaviour and safer roads for riders.

IMMA strongly promotes the activities of WP.29 to expand and promote global harmonised regulations on safety and environmental performance.

The creation of globally harmonised markets would benefit motorcycle production, reducing costs, improving economies of scale, and help manufacturers roll-out new technologies more quickly. It would bring considerable efficiencies with more accessible products for customers all over the world. All these elements favour the safety of vehicles and benefits the end users.

IMMA invites countries, who are not a signatory or have not acceded to the instruments managed by the World Forum, such as the 1958 Agreement and 1998 Agreement, to join WP.29, accede to the agreements, and adopt worldwide regulations for safety and environment.

▲ Protection of Intellectual Property Rights (IPR)

As a result of globalization, economic development and rapid motorization in various emerging and developing countries, manufacturers face complex issues related to IPR.

Today, trade in counterfeit products is reaching epidemic proportions, particularly in developing countries, which are highly price sensitive. Customers can be easily attracted by low cost, but low quality, counterfeit spare parts marked illegally with well-known global brand names designed to mislead customers. Counterfeit products, being cheaper, are usually made of low quality raw materials and rarely go through any safety tests or quality certification. The most commonly counterfeited spare parts are those which are fast moving in the aftermarket and those which are frequently replaced, such as all types of filters, spark plugs, brake pads, clutches, suspension items, electrical items etc.

Often the customer either cannot distinguish between genuine or counterfeit parts or is not concerned by it because the low price point is the most important factor and the spare part works at the time of fitment. However, these customers may not fully understand the adverse impact counterfeit spare parts may have on other vehicle systems and ultimately on their own road safety.

Consumer awareness is the key to eliminating this problem and original manufacturers have started regular campaigns and various outreach programs in educating influencers and end consumers on the benefits of using genuine parts. Many of these manufacturers have hired agencies specialized in trademark and copyright protection to identify infringements and support the authorities to conduct raids on outlets, manufacturing and/or selling counterfeit parts.

Nearly all markets in the world are affected at different levels by counterfeit products. For example, distribution of illegal counterfeit components or distribution and promotion of full counterfeit vehicles.

To protect customers from accidents caused by the use of counterfeit products of inferior quality and safety, IMMA emphasizes the importance of enforcement of measures to prevent the marketing, distribution, sale and use of either non-compliant, or unsafe motorcycles and their parts or those in which intellectual property rights are infringed.

A vehicle in its original form has been configured and designed in such a way as to ensure legal compliance. Modifications using components that are not recommended by the original manufacturer for proper use on on-road vehicles or not installed by its authorised representatives, pose significant threats to overall compliance and performance.

Intellectual Property protection is everyone's responsibility. A strong commitment and consistency on IP enforcement from all agencies involved in IPR is needed. In parallel, those efforts must be intensified to increase public awareness of IPR and the seriousness of IPR infringements as counterfeiting puts in danger consumer's health and safety.

Therefore, education and awareness strategies require further attention in many regions, to develop enforcement initiatives and best practice. In some regions, significant efforts are necessary to improve rules and procedures, capacity building of law enforcers strengthen the monitoring of counterfeit sales, and warning to counterfeiting manufacturers and retailers.



BE GENUINE, BUY GENUINE

Chapter 4: A Strategy needs Support

4.1 A Strategy needs Support: The Integrated Approach

*“A safe system approach is required to improve the safety of PTWs
Growing PTW traffic makes it imperative to adopt safety interventions targeting this mode
of transport, while integrating it into a safe system approach.
Improving the safety of PTWs should be a shared responsibility.*

*All relevant stakeholders need to be actively involved in the process of drawing up and
implementing a shared road safety strategy which includes safer behaviour of all road
users, safer infrastructure and vehicles with enhanced safety features. As the economic costs
associated with PTW crashes are significant, investing in PTW safety can bring important
societal and economic benefits.”*

(OECD - ITF Joint Transport Research Centre draft Report “Safety of Powered Two Wheelers”, 2014)

Only a truly comprehensive approach integrating knowledge, policy, human behavioural change, infrastructure and vehicles can address the needs of PTW riders for a better and improved road safety performance.

IMMA members actively support the ‘**shared responsibility**’ concept and are committed to reducing accidents by participating in research, road safety initiatives and projects and supporting forums and platforms, acting towards the common objective of improving PTW safety.

IMMA and its individual members and associated manufacturers have been involved in various regional, national and local undertakings and consider that further developments in this area are strongly recommended in different regions in the world.

It is for this reason that IMMA has stepped up its involvement at the international level and contributed to activities under the International Transport Forum and joined International Road Traffic Accident Data (IRTAD) and United Nations Road Safety Collaboration (UNRSC).

IMMA and its members will persevere in their efforts to participate in various initiatives and projects, including in-depth and naturalistic riding studies to support the bringing together of all key stakeholders who can provide a positive and even handed approach to road safety.

4.2. A Strategy needs Support: Research, Data & Analysis

In order to better understand the road safety situation in each region, data needs to be available according to harmonized definitions. It is not possible to analyse which are the right solutions to employ in a particular region if there is no data to illustrate the most frequent or severe types of accidents.

In-depth analyses and comparisons between different regions can only be relevant if raw data is collected using standardised definitions and methodologies. In-depth analysis will provide a deeper understanding of the situation, whereas general statistics may provide first high level indications only.

Unfortunately, there are still too many countries where PTW accident statistics are not collected at all or not maintained at an adequate level. Definitions of key variables may vary from one country to another, some variables are not collected in all countries, data is missing, or is not in line with other sources.

The absence of data relating to km/miles travelled by different vehicle modes is a serious deficiency. This means that accurate records of casualty rates per distance travelled – the most accurate measure of relative safety - is unavailable.

Harmonised data is useful for looking into global trends or patterns of progress. However when studying accident data it is crucial to realize, as outlined in chapter 1, that traffic systems, climatic conditions, road infrastructure, and the PTWs themselves (both their purpose and usage patterns) vary widely, from region to region, country to country.

Factors which vary most from one country to another include the balance of PTWs in the traffic mix, plus whether the PTW is being used functionally (such as for commuting) or for leisure. Hot countries often tend to have a greater proliferation of scooters than larger motorcycles. Poor road conditions can dramatically and negatively impact the number of accidents in developing countries.

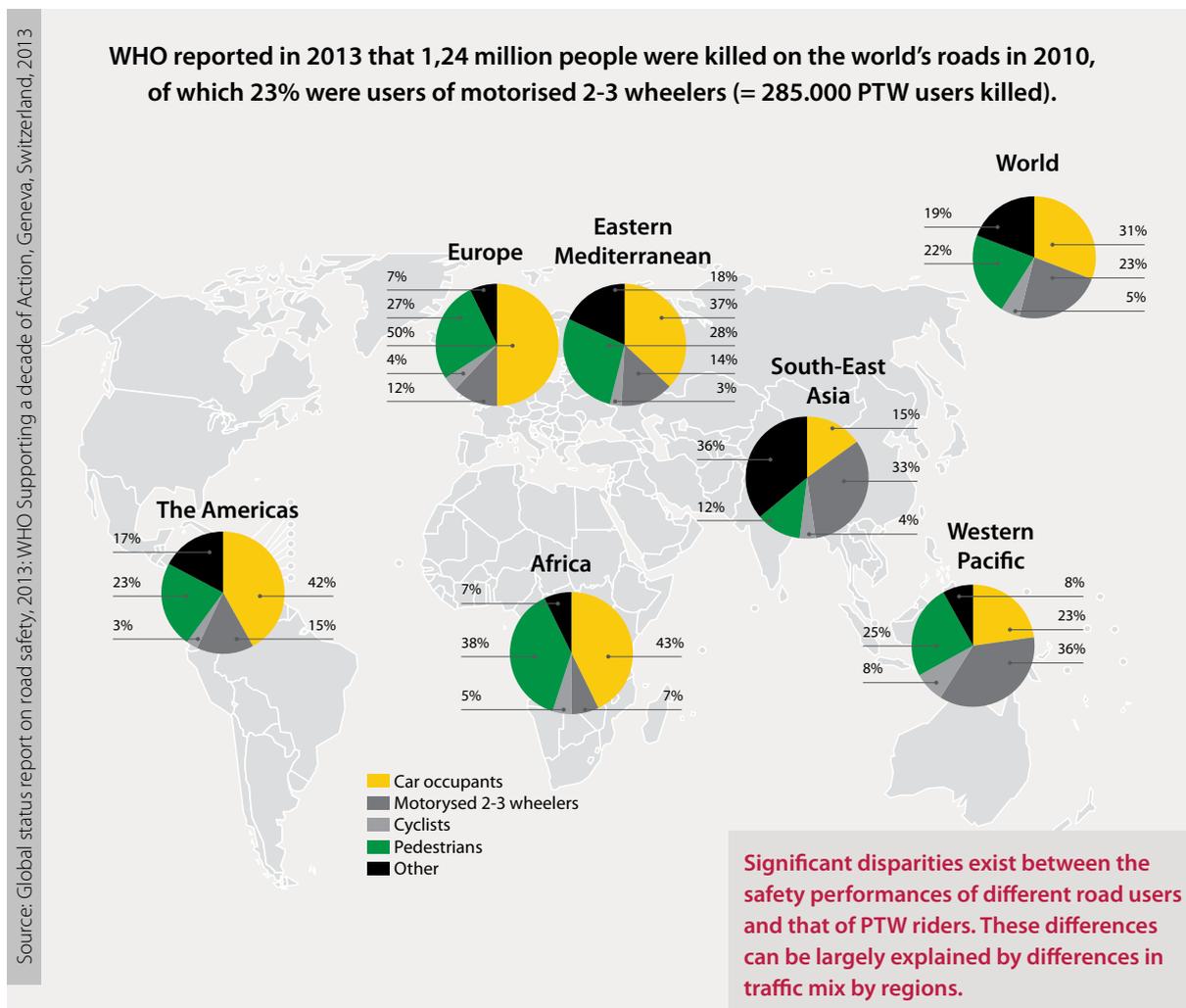
When studying the road safety situation in the regions, such differences should be taken into account. **To adequately understand the PTW safety trends, local studies are required.**

Consequently, it would not be accurate to analyse the global situation on the basis of one consolidated dataset. An in-depth analysis by countries or regions (grouping countries with similar data collection methods, similar vehicles and similar use) would appear to be one useful way of summarising worldwide trends.

The most recent comprehensive overview of accident statistics was created and reported in the WHO publication "The Global status report on road safety 2013". The overview indicates that "the safety of riders remains of particular concern worldwide as in many countries the number of riders killed and seriously injured has not been reduced in line with improvements for other categories of road users."

This statement in itself underlines the importance of the need for robust casualty data, so that policies and actions to mitigate the situation underlined by the WHO can be targeted effectively, and avoid an approach which may not be appropriate in some countries or regions. One size does not fit all.

▲ Road traffic deaths by type of user by WHO region



IMMA emphasises that the analysis of the trends in road safety is most important. Analysis of the absolute number of fatalities can lead to misinterpretation and inadequate comparison as the growth or decline of the riding population is not taken into account.

Below, the trends have been identified by comparing indicators over time with number of PTW fatalities per 10.000 vehicles in use. It should be noted that this table offers general information only. **IMMA contends that care should be taken when comparing the performance between countries. This is because there are major differences in the actual traffic context or traffic mix in the regions. Examples being different use of PTWs, large differences in the state of the infrastructure, different driver licensing schemes, climate conditions or other factors. A further important notion is that data collection efforts and methods are very different between regions, and generally improve over the years, which should be well considered when interpreting data and trends.**

Rider safety performance - Trends in the regions 2006-2011

Region/Country	Comparison between 2011 and 2006			
	PTWs fatalities/10,000 PTWs 2006	PTWs fatalities/10,000 PTWs 2011	Evolution (in %)	Evolution of the circulating park (vehicles in use) during same period (in %)
Australia	5.16	2.93	-43.2%	46.7%
Europe*	2.02	1.50	-25.7%	4.4%
India	2.91	3.01	3.3%	57.3%
Indonesia	3.38	3.17	-6.3%	116.0%
Japan	0.97	0.80	-18.2%	-5.7%
Malaysia	4.95	3.72	-24.9%	33.9%
Philippines	3.14	1.77	-43.7%	56.1%
Thailand	5.35	3.84	-28.3%	16.0%
Taiwan	1.07	0.71	-34.1%	11.9%
USA & Canada	7.05	5.24	-25.7%	27.3%

* Europe includes Austria, Belgium, Czech Republic, France, Germany, Greece, Ireland, Italy, The Netherlands, Poland, Spain, Sweden, United Kingdom

Source: IMMA

In many regions results are really encouraging with PTWs fatalities decreasing while circulating park figures are constantly increasing - the greatest boost of all transport sectors for the last decade.

There has been a significant improvement in PTW fatalities per 10.000 vehicles in most countries/regions (2011 vs 2006). In most cases reduction observed is lower for the PTWs than the reduction for the total fatalities/10.000 motor vehicles.

This relative reduction of PTWs fatalities needs to be associated with the high increase of the PTWs circulating park during the same period. In other words, the risk of having an accident on PTWs has fallen despite fatality records not having improved as fast as is desired.

The accident trends demonstrate that PTWs, and their rapid growth, have not been successfully considered in transport and mobility plans. A significant change in approach is required. The great disparity in road safety performance and risk exposure for PTW riders between countries, regions and cities in the world requires further exploration and proper analysis.

There is a strong need to deliver periodic reviews of PTW road safety performance at national level that will provide policymakers and safety practitioners across the world with easily accessible factual and useful information.

For the study of PTW safety trends, IMMA recommends investigation of the following:

1. The trend and absolute number of fatalities and number of registered vehicles (circulating park) by category of road users (moped, motorcycle and all PTWs).
2. The trend and absolute number of kilometres ridden by the different categories as exposure risk data.
3. When kilometres/miles travelled are not available, the ratio of riders killed per 10,000 circulating PTWs will provide insight to identify trends. However, one should remain careful comparisons of the PTW road safety situation with other localities, countries or regions, because particularly for PTW use the context can be very different.

4. Comparisons between countries require the consideration of a great number of different indicators (including economics, demographics, etc.). These indicators should be accounted for when setting goals or targets at a global level.
5. Analysis into any great disparities in road safety performance and risk exposure for PTW riders between countries, regions and cities in the world, showing where there may be greatest potential for safety improvements.
6. Statistics on helmet wearing rates, results of awareness raising campaigns combined with enforcement actions targeting specific groups of riders in certain localities or areas. Note: It is essential that targeted enforcement is only used as part of wider actions to engage riders in safety awareness in a positive way.
7. Local conditions such as infrastructure condition, local laws and administrative/enforcement structures should also be considered as part of the background to country/region studies in particular.

Detailed and complete set of PTW accident and exposure data is needed at global, regional and national levels.

PTW in-depth studies

PTW accident in-depth studies help to better understand the causation of PTW accidents and may allow for estimates of the effects of introducing new technologies, new licensing and training schemes, as well as new motorcycle friendly infrastructure. Thanks to the great insights they provide, in depth studies help to better target specific challenges and identify appropriate countermeasures.

Naturalistic riding studies

The naturalistic riding studies observe the natural behaviour of road users during ordinary every day trips with their own vehicles. To collect the necessary data, the vehicle is equipped with various instruments, in an unobtrusive manner, which register the vehicle movements (like speed, acceleration/braking, direction), driver behaviour (e.g. eye, head and hand movements), and external conditions (road features, traffic, weather etc.).

This yields a large amount of information about the relationship between person, road, vehicle, weather and traffic conditions, not only under ordinary circumstances, but also in (near) crashes. Naturalistic riding studies are considered as an essential tool for collecting and analysing extensive exposure data on PTW rider behaviour and trajectories, which can be used for the evaluation and potential improvement of training, the design of Human Machine Interfaces (HMI), and road signage, among many other factors.

Improved knowledge on PTW accident causation, normal riding and safety critical events is fundamental to identifying the right safety priorities.

Therefore, the industry calls upon the international and national institutions to consider the opportunity of implementing in-depth accident and large-scale naturalistic riding studies.

4.3 A Strategy needs Support: Tailoring Strategies to meet Localised Needs

Fundamental to pulling together the many factors which influence PTW safety, is the need to tailor any strategies or actions to the local environment. Action towards motorcycle safety in one country may not be workable in another. In order to assess what is appropriate for a particular country or region, a collaborative approach is required where the two wheeler community, the police, policy makers, industry and city planners work together to agree on what is right for a particular road network.

The major causes of accidents or injuries also vary greatly from one country to another, and the responses to these causes should be adapted accordingly. In order to isolate the most prevalent causes of accidents, localised studies are first required. For example, the most significant factor causing PTW fatalities could be poor road conditions in a developing country, whereas in a more developed but extremely hot country, a major factor in saving lives could be the increased rate of helmet wearing.



Chapter 5:

Global Best Practice Examples

Introduction

Key to the development of road safety policy in any country or territory is the sharing of best practices. This can help to facilitate activities, save time in developing strategies and ensure that 'wheels are not reinvented' where this is not needed.

Clearly each country will have local conditions, cultures and attitudes that are unique and a 'one size fits all' approach would not always be appropriate. However, there is a wealth of safety knowledge that exists in relation to PTWs on a global sense. This knowledge is ripe for sharing and with suitable local adaptation implementing and exercising.

IMMA has pooled the extensive knowledge and resources that exist across the world to create a resource which is now available to the global institutions, governments, public authorities and other stakeholders with an interest in PTW safety.

Available as annex to the current document, the IMMA Best Practice resource covers the following areas:

- Safety and Transport Policy
- Infrastructure
- Awareness, Training and Education
- Data & Analysis

The above themes all fit within the Four Stage Strategy principles. In many cases, the initiatives outlined have been developed by IMMA members in collaboration with public authorities, or they may be initiatives that have been initiated by Governments themselves.

In all cases they represent 'sharable' best practice and a resource for those who are looking to improve PTW safety.

Safety & Transport Policy

Motorcycle Confederation – the voice of the riders
Canada...



Education & Training

Road Safety education for the youth
Japan, Indonesia, India...

Safety & Transport Policy

European Safer Urban Motorcycling Project
Europe...



Infrastructure

PTW Guidelines for road design operators
Europe...



Infrastructure

Advanced stop lines for riders
Spain, Indonesia...

Data & Analysis

In-depth accident studies
Europe, USA, Japan...



Awareness campaigns

Promotion protective equipment for riders
Japan, Thailand, Canada, Australia, Europe...



Safety & Transport Policy

Adaptation and application of suitable best practices
India, USA...

Education & Training

Training and education for riders and specific groups
Europe, India, Japan, Canada, Philippines, USA, Malaysia, Indonesia...





Infrastructure
Treatment of specific PTWs black spots
Australia...

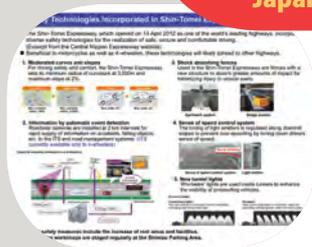
Awareness campaigns
Road Safety campaigns for the general public
Malaysia, Asia, Thailand, Japan...

Safety & Transport Policy
PTW Safety Strategies
Sweden, Thailand...



Awareness campaigns
Safety awareness campaigns for riders
Japan, Canada, India, Philippines, Thailand...

Infrastructure
Advanced safety technologies in highways
Japan...



Education & Training
Police-led education and enhanced enforcement for riders
Australia...

Safety & Transport Policy
Regional Safety initiatives, UN Decade for Action
Philippines...



Infrastructure
Motorcycle lanes/bus lanes open for riders
Japan, UK, Taiwan, Canada, Malaysia...



Chapter 6:

Recommendations & Conclusion for Safer Motorcycling

Creating better motorcycle safety involves a fully holistic approach, which as a key fundamental must recognise the vital role of the PTW in the social and business life of many nations. There is an extremely strong need to involve all stakeholders in the process of creating a favourable environment for safer motorcycling.

While providing PTWs with the most advanced safety technologies is important, it is only one part of the comprehensive approach to motorcycle safety. The industry carries out a wide variety of activities such as rider training and public awareness campaigns in addition to the continuous R&D efforts by manufacturers leading to the innovation of PTW technologies. Nevertheless, road safety cannot be achieved single-handedly by the motorcycle industry without the cooperation of international organizations and governmental authorities. Industry is keen to play a part in an integrated approach alongside other stakeholders.

Transport and mobility policies need to integrate PTWs together with walking, cycling, and public transport to create fully rounded transport strategies for citizen and business mobility and safety.

National strategies need to be balanced towards integrating the characteristics of the use of PTWs within their country, and the important role PTWs have in social, utility and business life. Installing a PTW policy framework in each country taking into account the particular country's context is critically important. Countries are encouraged to study the best practices established in this document and evaluate adoption and implementation considering the specific needs of the regions.

In regions where there are populations of millions of PTW users, safety policy development should be directed at further enabling sustainable PTW use. The objective should be to maximise opportunities to ride on roads, which will be safer, while recognizing that PTWs continue to remain vitally important in terms of affordability, mobility, the economy and the environment.

Concrete recommendations

The Four Stage Strategy

- Public Policy
- Infrastructure
- Training & Education
- Technology advances

A Strategy needs Support

- The Integrated Approach
- Research, Data & Analysis
- Tailoring Strategies to meet Localised Needs

The Four Stage Strategy

Public Policy

Motorcycling contributes towards the wider economic and social goals of the society as a whole. Examples include:

- The importance of PTWs to low personal income economies,
- The importance to public service in developing countries (healthcare delivery),
- The role of PTWs in public service globally (emergency and rescue services),
- Importance as a business 'enabler',
- Importance as a mobility provider,
- Importance as a means to reduce overall congestion and pollution,
- Importance as a means to increase social inclusion and the engagement of young people,
- Importance for accessing areas affected by emergencies such as natural disasters (humanitarian response),
- The role of the industry in creating economic growth,
- The social and economic contribution of motorcycle sport,
- A mode of transport that deserves to be recognised and promoted by policy makers.

To realise the opportunities outlined above, the safety of PTW riders is essential to successfully reducing the total number of global road fatalities. This can most effectively be done by adopting an integrated, comprehensive approach including mainstream transport policy inclusion, infrastructure improvements, advances in vehicle technology and lastly, with added emphasis on the human factor, education and training for all road users.

Recommendations

- Governments, as a key requisite to developing genuinely effective safety policies for PTWs, must include PTWs as a mainstream aspect of their transport policies, alongside walking, cycling and public transport.

Infrastructure

Safer roads for riders will create significant potential for better rider safety performance. Meaningful effort is needed to make road infrastructure safer for PTW riders.

Recommendations

- Governments need to consider how PTWs can be integrated into more sustainable and safer transport systems.
- Inclusion of PTWs in infrastructure policies and regular audits to assess safety levels of both existing and new road infrastructure projects are crucial points for a safer environment for PTW users.
- Predictable road geometry, good visibility, obstacle free zones and good quality road surface with high levels of skid resistance are some major examples. While important for all road users, they are essential for PTWs.
- The use of existing best practices in the area of PTW and the roads infrastructure are strongly recommended.

Training and Education

The human factor: Influencing human attitudes and behaviour is crucial for enhanced safer motorcycling.

Recommendations

Rider training should be affordable, accessible and effective

- Initial rider training for novice riders, prior to licencing, should be encouraged and made available in countries where this option is not provided.
- There is a need to allocate resources and infrastructure for systematic motorcycle training and education, especially in countries where the volumes of motorcycle usage far exceeds the usage of cars.
- There is a need to improve the quality of the available training. Minimum standards and certification of training and trainers should be introduced. Training should be designed to enhance motorcycle safety by putting rider's hazard awareness and perception at the core of the training curriculum.
- Lifelong training and voluntary post-licence training should be promoted.

Education of drivers to better understand and perceive PTW riders on the road is essential for improving PTW safety

- Targeted mandatory components on the interaction drivers/riders and perception of PTW riders as part of the training curriculum and licensing assessments of other vehicle drivers are strongly recommended.
- Impaired riding – one driver for changing the attitude of the riders towards safer and risk-free behaviour (drinking and riding, tampering, riding without a proper PTW licence).
- There is a strong need for widespread awareness raising campaigns to highlight the dangers of impaired riding combined with appropriate and consistent enforcement.

The mitigation of riders' injuries is important for decreasing the severity of the impact of an accident on riders

- The usage rate of safety helmets should be brought to 100% with a mix of stronger enforcement and awareness raising campaigns, geared towards local conditions.
- The promotion of the benefits of proper personal protective equipment amongst riders should be done in line with riders' specific needs, local context and climate conditions.

Technology Advances

Industry continues to develop state of the art technologies to enhance the stability and control of PTWs. With appropriate consideration for the economic conditions of each vehicle market, manufacturers will promote technologies suitable for the road conditions and usage patterns of the customers in each country or region.

Whilst many advances have already been made, the industry is committed to striving to make PTW use safer, easy and more attractive across the world.

Recommendations

- IMMA invites developing countries to join WP.29, accede to the Agreements and adopt harmonised worldwide regulations for safety and environment.

It should be remembered that providing PTWs with additional vehicle related options or technologies – or introducing a vehicle specific regulation is not on its own sufficient without a strong and continued integrated policy involving rider behaviour, training and infrastructure.

Making it Happen - A Strategy needs Support

1. The Integrated Approach
2. Research, Data & Analysis
3. Tailoring Strategies to meet Localised Needs

The Integrated approach

Recommendations

- The integration of the strategic elements in this document requires the involvement, consideration and commitment of all stakeholders. Creating a system which enables safer riding and driving for all, requires the collaboration of the PTW industry, all road user groups, engineers, road designers, road safety experts, the police, national policy makers and local authorities.

Research, Data & Analysis

Recommendations

- Setting realistic goals and targets based on reliable scientific analysis of PTW data should be supported by a detailed and complete set of PTW accident and exposure data at global, regional and national level.
- The improvement of global data gathering, with an emphasis on improving knowledge of usage patterns and distances travelled by modes is essential step to address PTW safety properly.
- Selecting efficient countermeasures by fully understanding the accident causation and contribution of human behaviour requires improved knowledge on PTW accident causation, normal riding and safety critical events. Accident in-depth studies, naturalistic riding studies and related projects should be encouraged and implemented at regional and national level. This would allow for the identification and application of best practices that could be easily transferred and adapted to other countries.

Tailoring Strategies to meet Localised Needs

Recommendations

- A multitude of good examples from across the globe are available. The identification, adaptation and application of best practices across the world are promising paths in delivering safer motorcycling. However, in order to ensure that policy actions are appropriate to the local environment and the people they are trying to serve, every policy action should be accompanied by a pre- and post- evaluation so that the safety impact of the measure can be assessed, and the measures further improved and ultimately shared with others.

Conclusion

Acting Together to Improve Safety

This paper has set out the key elements that taken together comprise an effective and sustainable approach to PTW safety. Although it may be a temptation for authorities to merely take some of these elements and implement these in a 'piecemeal' way – perhaps as a way of satisfying a political imperative to 'do something' about safety - this approach will be unlikely to result in the outcomes desired.

Adopting, in full, the principles outlined in the Shared Approach to Road Safety offers a realistic opportunity to address PTW safety within the context of a properly managed approach to transport use and safety. But key to success will be to integrate the principles of working in partnership with all involved in PTW safety and to ensure that a holistic approach is taken. By doing this, public authorities will have the greatest chance of securing safety improvements while at the same time realising the PTW opportunity that exists in relation to transport networks and citizen mobility.

IMMA recommends this document and its principles to the global road safety and transport policy community.

Annex 1:

Best Practices – Concrete examples

Safety & Transport Policy

Infrastructure

Awareness, Education & Training

Data & Analysis

Safety & Transport Policy

Safety and Transport policies which account for PTWs and are adapted to local specificities



11. Encouraging riders to attend voluntary training courses
Canada



Increased safety for motorcycle and moped riders
Joint strategy version 2.0 for the years 2012-2020



1. Motorcycle Safety Strategy
Sweden



7. Active collaboration of motorcycle manufacturers with the National Administration
USA



6. Safe Annual Convention
India



3. National Road Safety Agenda (2011-2021)
Thailand



5. Increased number of trained riders
Malaysia



9. Operation yellow flag
Australia



2. Call to Action towards Unity, Safety and Equality
Philippines

Subcategory	Examples	Aim/Results	Partners
Regional safety initiatives, UN Decade of Action for Road Safety	1. Motorcycle Safety Strategy, Sweden www.fim-live.com/fileadmin/user_upload/documents/CAP/2012_194_increased_safety_for_motorcycle_and_moped_riders.pdf	Unique example in Europe, a specially designed for PTW riders national safety strategy. To halve the number of rider fatalities and reduce the number of rider injuries by 40% between 2010 and 2020 by involving all stakeholders. The strategy presupposes that all stakeholders within their own areas of responsibility implement, individually or cooperatively, initiatives at the local, regional, national and international level. The prioritisations and the work is based on facts and scientific grounds as much as possible.	All major stakeholders in Sweden: Industry, Swedish Transport Administration, Swedish riders' association, Police, Insurance association, Swedish association of driving schools, Swedish Association of local authorities and regions
	2. Call to Action towards Unity, Safety and Equality, Philippines	Pursue "Helmet On, Headlight On" (H20) Program - increasing awareness on the advantages of switching headlight on and proper wearing of standard helmets; Launch of 2W Ride for a C.A.U.S.E. (Call to Action towards Unity, Safety and Equality) - a nationwide relay ride done every weekend from September to November culminating during the World Day of Remembrance. The Ride is organized through out the country using local government as communication channels and riders as messengers.	Department of Transport and Communications and Global Road Safety Partnership Philippines (GRSP)
	3. National Road Safety Agenda (2011-2021), Thailand http://www.grspasia.org/download12/Chayan-Sirimas_Thailands-Road-Safety-Strategy.pdf	Comprehensive approach towards safety, aim = 50% reduction of road fatalities in Thailand by 2021. The agenda encompasses 8 main domains: <ol style="list-style-type: none"> 1. Helmet wearing 2. Riding/driving and drinking 3. Reduce "risky" road areas 4. Speed limit violation 5. Vehicle Standards 6. Training of drivers and riders 7. Emergency help 8. Road infrastructure management system 	Thai government
Various initiatives	4. European Safer Urban Motorcycling, Europe www.esum.eu	The reduction in PTW collisions and casualties is feasible, by involving all stakeholders and embracing holistic approach - user behaviour, vehicle design and road infrastructure. The eSUM project provides immediately applicable tool (Action Pack) to improve the safety of traffic in cities and towns and could be easily replicated even beyond Europe.	4 European principal motorcycling cities, Industry, Academic and research organisations, supported by the European Commission
	5. Increased number of trained riders, Malaysia www.bl1m.my	To encourage riders to undergo training and obtain riding licence. Providing more affordable training options and reduced licence fees to riders in difficult economic situation. 103 000 new motorcyclists participated in this program.	Malaysian government and Road Transport Department
	6. Safe Annual Convention, India	To improve the safety of riders in India by adopting best practices from Indian States and other countries and regions. Based on integrated approach: safety management system, infrastructure, training, enforcement and vehicles. In 2012 edition more than 150 officials took part in the event inaugurated by the Transport Commissioner of Himachal Pradesh.	Industry, Government and local administration

	<p>7. Active collaboration of motorcycle manufacturers with the National Highway Traffic Safety Administration (NHTSA), USA</p>	<p>In efforts to collaborate with government regulators, industry representatives participate in quarterly meetings of NHTSA. The industry also provides support for crash studies and sponsors a wide range of safety initiatives through state and national motorcycle riding groups. In the absence of meaningful exposure data, the US rider community is encouraging the government to develop policy based on actual vehicle miles travelled (VMT) rather than comparing the total number of accidents of automobiles versus motorcycles.</p>	<p>Industry, National Highway Traffic Safety Administration (NHTSA)</p>
	<p>8. Motorcycle Confederation, Canada http://motorcycling.ca/</p>	<p>To enable riders' active participation in the national motorcycle debate. At the initiative and financial support of the industry, 37 motorcycle clubs and federations have joined forces and have established Motorcycle Confederation of Canada (MCC). The MCC is the voice of organized motorcyclists in Canada and advocates positions that benefit public policy and traffic safety issues related to riding and riders.</p>	<p>Industry and riders</p>
	<p>9. Operation yellow flag, Australia</p>	<p>To improve motorcycle safety through integrated police-led education and enhanced enforcement. Police is discussing safety awareness with both riders and drivers during roadside stops. In 2010, over 20,000 riders and drivers were intercepted and given some education pamphlets. Enforcement activities were undertaken in a visible, well publicized and repetitive way to reduce identified high risk behaviours such as excessive speed, failing to give way and riding while impaired. Result: reduction in the number of traffic offences, with the majority in the speeding offences category;</p>	<p>Victoria Police</p>
	<p>10. Developing pro-motorcycle policies and initiatives, U.S.A.</p>	<p>Collaborative and thoughtful approach to motorcycle safety through training, licensure and safe riding programs.</p>	<p>Motorcycle Industry Council (MIC), American Motorcyclist Association (AMA), Motorcycle Safety Foundation (MSF), Motorcycle Riders Foundation (MRF), and various state motorcycle rights organization.</p>
	<p>11. Encouraging riders to attend voluntary training courses, Canada http://motorcycling.ca/</p>	<p>Next to the provided financial and logistical support for rider training programmes across Canada by the industry, the incentives offered by many insurance companies have contributed to attracting a huge number of novice riders. Approximately 85% of new riders take a riding training course to get their license in Canada. It is estimated that around 25,000~30,000 people take rider training courses before getting their motorcycle license each year.</p>	<p>Industry, Provincial Ministries of Transport, Rider Training Institute</p>

Infrastructure

Safer and PTW friendly infrastructure



4. Motorcycle Lane
Malaysia



3. High Occupancy Vehicle Lines (HOV) lines
Canada



1. Bus lanes open for riders
United Kingdom



6. Advanced stop lines
Spain



2. Bus lanes open for riders
Japan



7. Advanced stop lines
Indonesia



1. Bus lanes open for riders
United Kingdom

Subcategory	Examples	Aim/Results	Partners
Motorcycle lanes/bus lanes open for riders	1. Bus lanes open for riders, The United Kingdom http://www.tfl.gov.uk/roadusers/redroutes/10151.aspx	To separate the traffic flow between motorcycles and automobiles for improving road safety and increasing traffic flow speed. First trial – opening 107 km bus lanes to PTWs in London: 51% PTW switched to ride the bus lanes, comparing the 'before' and 'after' figures for 28 Control sites – decrease of 50.7% for PTW collisions; second 18 months trial – accompanied by focussed safety awareness campaign and increased enforcement Final result: - PTW riders are able to drive in bus lanes in London on a permanent basis - Smooth traffic, cut CO₂ across London and improve journey time reliability for motorcyclists on the network.	First stage – consortium of the European Safer Urban Motorcycling project (eSUM): Industry, Universities, City authorities: Barcelona, Rome, Paris and London, supported by the European Commission Next steps: Transport for London
	2. Bus lanes open for riders, Japan	There are few bus lanes open for motorcycle riders today. The Japan Research center for Transport Policy will evaluate the shared bus lanes and complete the report in 2015.	National Police Agency
	3. High Occupancy Vehicle Lines (HOV) lines, Canada www.mto.gov.on.ca/english/traveller/hov/lines.shtml	HOV lanes help motorcyclists to ride safer in dense and congested traffic; it could be considered as an incentive for people commuting to work that gain some important time every day. There is no statistics yet available.	Provincial Ministries of Transport
	4. Motorcycle Lane, Malaysia http://forums.sgclub.com/singapore/north_south_motorcycle_329194.html	To build a special motorcycle lane (the longest one in Malaysia) by 2020 in an area with high concentration of road fatalities. Estimations: halving the number of road fatalities in this area.	Ministry of Labour (Transport and Road Safety Department)
	5. Motorcycle Exclusive / Priority Lane, Taiwan http://www.fami-motorcycle.org/report/report_20100919031917_11.pdf	Motorcycle Exclusive Lane = lane only for motorcycle riders and banned for the other vehicles; Motorcycle Priority Lane = the motorcycle rider has the priority to drive in first, available for other users as well. Infrastructure measures recently introduced, no concrete results for the moment.	Labour Ministry, Ministry of Transport and communication
Introduction of advanced stop lines	6. Advanced stop lines, Barcelona, Spain www.esum.eu/index.html	To provide a special stop space for PTW riders at traffic light and reduce conflicts between PTWs and PTWs and cars. Barcelona introduced "advanced stop lines" at 3 junctions in the city. Large reduction of movements involving risk – from 29% to 8% were observed. Based on the successful case, Advanced Stop Lines were introduced in 36 sites in 2009 and the activity is now expanding.	Consortium of the European Safer Urban Motorcycling project (eSUM): PTW industry, Universities, City authorities: Barcelona, Rome, Paris and London, supported by the European Commission
	7. Advanced stop lines, Indonesia www.kabarpublik.com/2012/01/dllaj-kota-bogor-terapkan-ruang-henti-khusus/	First implemented in Bandung city in 2010, now this initiative will be progressively introduced in other cities. Increased comfort and safety of all road users - traffic conflicts reduced by 72% and the traffic flow increased with 11%.	Ministry of Transport

Various initiatives	8. Speed limit 30km/h Barcelona, Spain	To improve safety of all road users. Positive effect on the accidents trend - casualties decreased with 12.2%. The average monthly PTW casualties – reduced by 40.5% (five years prior to implementation). This initiative is introduced for all vehicle categories. Very effective solution to reduce casualties within big city.	Industry, Training institutes, City Traffic Police and State Transport Department
	9. Safety Technologies Incorporated in highways Shin-Tomei Expressway, Japan	Introduces the most advanced safety technologies to a newly established highway (2012) , incorporates diverse safety technologies: moderated curves and slopes, improved tunnel light, shock absorbing fences, automatic event detection for safe, secure and comfortable driving for all road users.	Nippon Expressway company (NEXCO) Central
	10. Road improvement at black spots, State of Victoria, Australia www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferRoads/BuildingSaferRoads.htm	To improve road environment and achieve rider safety by reducing the number of PTW casualties at these locations. Black spots are places where road accidents are frequently occurring based upon specific data. Improved rider safety by reducing the number of motorcycle casualties at over 119 locations. A 24% reduction in injuries at all sites treated, a 40% reduction at 54 blackspot sites.	State of Victoria, Australian government
	11. Report by the U.S Department of Transportation and the Federal Highway Administration on the infrastructure improvements made in five European countries, U.S.A. http://international.fhwa.dot.gov/scan/12028/	In 2010, a team of safety and engineering experts joined industry representatives in assessing and evaluating infrastructure improvements made in five European countries. The experts recommended that transportation agencies in the U.S.A. should establish goals to reduce motorcycle injuries and fatalities through roadway design, operations and maintenance practices. Additionally, transportation planners should consider motorcycles in addressing traffic issues, land use and parking.	Federal Highway Administration, the American Association of State Highway and Transportation Officials, National Cooperative Highway Research Program, American Motorcyclist Association, and several universities.
	12. Guidelines on Safer Road Design for Powered Two-Wheelers , Europe www.acem.eu/images/stories/doc/safety/d_SafetyPlanforAction_94993.pdf	A handbook published with the aim of explaining how PTWs differ in their use of the road from other vehicles and the specific riders' needs. Predictable road geometry, good visibility, obstacle free zones and good quality road surface with high levels of skid resistance are some major examples. While important for all road users, they are essential for PTWs.	Industry

Education and training

Education for all road users

Training options: specific groups, novice riders, returning riders, advanced riders, etc.



5. Rider Training Institute
Canada



9. Rider's Edge programme
USA



8. Voluntary Safe Training
Spain



17. Road safety education for children
Japan



2. Female Safety Riding Training
India



18. Road safety education at school
Indonesia



3. Safe riding school events
Japan



10. Road Safety Outreach Seminar
Philippines



11. Certification of training courses
Germany

Subcategory	Examples	Aim/Results	Partners
Training for novice riders	1. Initial Rider Training (IRT) Programme, Europe www.initialridertraining.eu/	Established European model of initial rider training programme. The modular concept is rider orientated, based on the initial appraisal of the rider's expertise, striving to build upon his experience and skills already acquired on the lower category motorcycle. The concept is putting emphasis on the rider's hazard awareness and perception. IRT manual translated by the European Commission in many EU official languages.	Industry, European Riders Association (FEMA), International Motorcycling Federation (FIM), supported by the European Commission
	2. Female Safety Riding Training, India	To educate and train female riders and enable them to become safe riders while commuting daily. This initiative started in 1985, more than 32,500 female riders have been trained. This is a regular program in the PTW dealerships across India.	Industry
	3. Safe riding school events, Japan	Various courses provided to meet different riders' needs: novice riders, newborn riders, female riders, aged and advanced riders. The program adds up to a total of over 1,000 events with the participation of 20,000 riders across Japan every year.	Industry
	4. Ride Safe Program, India	Practical training for novice riders.	Industry, Riders, Traffic Police
	5. Rider Training Institute, Canada	To further enhance the availability of training programs. The Canadian industry established the Rider Training Institute in 1999. The Institute alone has trained 37, 200 people – on average 3 500 riders per year.	Industry, Provincial Ministries of Transport
	6. Safety Corner' in 4S Dealer Concept (Sales, Service, Spares and Safety), India	Dealerships have a specially designed interface called the 'Safety Corner' where they educate customers on correct riding techniques and provide important information related to the safety environment, including road signs, first aid, etc. using specially designed audio visual communication. This activity started in 1985. In the year 2012-2013, a total of 13.5 million customers were educated at the dealerships across India and 12 500 underwent practical training. Safety education at the dealership is an ongoing and regular activity.	Industry
Voluntary, post-licence training	7. Bike Safe, The United Kingdom www.bikesafe.co.uk	To help riders to increase their ability and confidence, so they can become safer and more competent riders. Bike Safe is an initiative run by police forces around the United Kingdom who work with riders by passing on their knowledge, skills and experience. The main concept of Bike Safe is that riding should be fun and by improving skills, knowledge and hazard awareness will make riding safer and more enjoyable. The Bike Safe Observer give assessment and feedback which highlight areas where the rider needs to develop. Riders should continue to train throughout their riding years and not just stop once they have passed their bike test. Bike Safe assess around 5,000 riders per year.	Police, Transport Administration, Industry
	8. Voluntary Safe Training, Spain www.honda-montesa.es/inscripciones/index.php	To provide high quality voluntary training. The centre created in 1992 attracted more than 170,000 trainees. 4 courses offered: Kids/Schools, Scooter 125, Beginners/Re-entry, and Advanced/Professional. Courses are free of charge. The average customer satisfaction index is 9.45 (max.10), 91% of all participants consider that they have increased their riding skills/safety level, 84% of all trainees have never had an accident after the riding course.	Industry Training Center, Barcelona

Training of riders	9. Rider's Edge programme, USA www.harley-davidson.com/en_US/Content/Pages/learn-to-ride/learn-to-ride.html	To provide rider training that is effective, affordable and accessible. Through its branded rider training program, the industry works with government officials to integrate into and complement existing state-sponsored rider education courses. Currently the "Rider's Edge" program is offered in 42 out of the 47 states that offer rider training. Since 1999, the program has trained over 300,000 riders	Industry and state officials
	10. Road Safety Outreach Seminar, Philippines www.mdppa-inc.org www.fami-motorcycle.org/news/news_20130916104759_13.pdf	To educate and train motorcycle riders on topics such: safe riding, protective riding gear, vehicle inspection and intellectual property rights. This activity started in 2009. More than 10,000 participants. 60 weekend seminars held per year.	Industry, Motorcycle riders' federations, local government and Petron Corporation
Lifelong training	11. Certification of training courses, Germany www.dvr.de/betriebe_bg/sht_shp/infos_qsiegel.htm	To guarantee the high quality of training provided to PTW riders with a special focus on safety. Training providers apply to the German Road Safety Council to obtain the quality seal. If their programmes, trainers and training facilities are in line with the quality criteria established by the Council they could get the label. The Council is making constant monitoring of the trainings marked with the seal. The Quality seal guarantees high quality for the customers. The accent is on safety. Currently, more than 3 000 training courses are attributed with the quality seal.	German Road Safety Council, Industry
	12. Life-long learning and education for riders, USA online2.msf-usa.org/msf/Default.aspx#&panel1-1	To provide high-quality life-long learning options for riders. The Motorcycle Safety Foundation is the internationally recognized developer of comprehensive, research-based rider education and training system. Their curricula promotes lifelong-learning for motorcyclists and continuous professional development for certified rider coaches and other trainers. Since 1974 over 6 million students have graduated from a MSF- approved programmes (on average 400,000 riders per year)	Motorcycle Safety Foundation (MSF), Industry
Training for specific groups	13. Corporate Safe Riding Training, India	To train corporate employees riders. The training encompasses: workshop for corporates employee, theory session and safe riding training on simulator.	Private sector, Industry
	14. Training for traffic police officers, India	To enhance safer riding for traffic police members by providing refreshing courses. This activity started in 2006 and more than 500 police officers were trained.	Industry, Traffic Police, Local Administration
	15. Training for commuters, Malaysia issa.int/layout/set/print/layout/set/print/content/download/171139/3395839/file/2Malaysia-PKS-2012-2.pdf	To engage employers to enhance the safety of their employees commuters. Studies showed that for employees riders 88% of the accidents occurred while commuting to work (52% - on the way to work and 36% on the way back). Launch of commuting outreach programme for employers and employees, concrete results not available for the moment.	Teknologi Mara University & Social Security Organization

Road safety education for the youth	16. Family Road Safety Classroom, Japan	This training targets children in kindergartens and elementary schools. School teachers and community volunteers are serving as instructors in this program. Parents are encouraged to take an active part and many training lessons are organised during parents' days. Every year the program is performed 150 times at various locations in Japan, attended by more than 3,000 parents and children.	Industry
	17. Road safety education for children, Japan	To educate children on road safety and provide training to school teachers, parents and volunteers on how to teach children on traffic safety. This program started in 1995. In 2012, a total of 350,000 children took part in the program across Japan.	Industry
	18. Road safety education (kindergarten + elementary school + secondary school), Indonesia www.facebook.com/safetyriding.jawatengah	To increase the road safety awareness of society in general, the industry strives to educate children from a very early age. This project started in 2002, 500 events carried out per year and over 50.000 persons were trained in 2012.	Industry, Schools and Traffic Police, Indonesia
	19. Road safety and safe riding at school, India	Various courses organized targeting different age groups: kids (5 – 8 years old), young students (8-15), junior students (15-18) by using "Catch Them Young" approach. This programme started in 2010 and it is a regular full year activity. More than 50 000 kids and students participated in total.	Industry



Education & Training

Awareness rising campaigns for all road users



6. Welcome to our family campaign
Canada



16. Promotional Helmet Campaign
Asia



8. National Road Safety Week
India



7. Moped safety promotion for commuting students
Japan



4. National safety riding contest
Japan



15. Promotion of personal protective equipment
Europe



10. Road Safety Jamboree
Philippines



17. PTW Service check-up campaign
Thailand



10. Road Safety Jamboree
Philippines

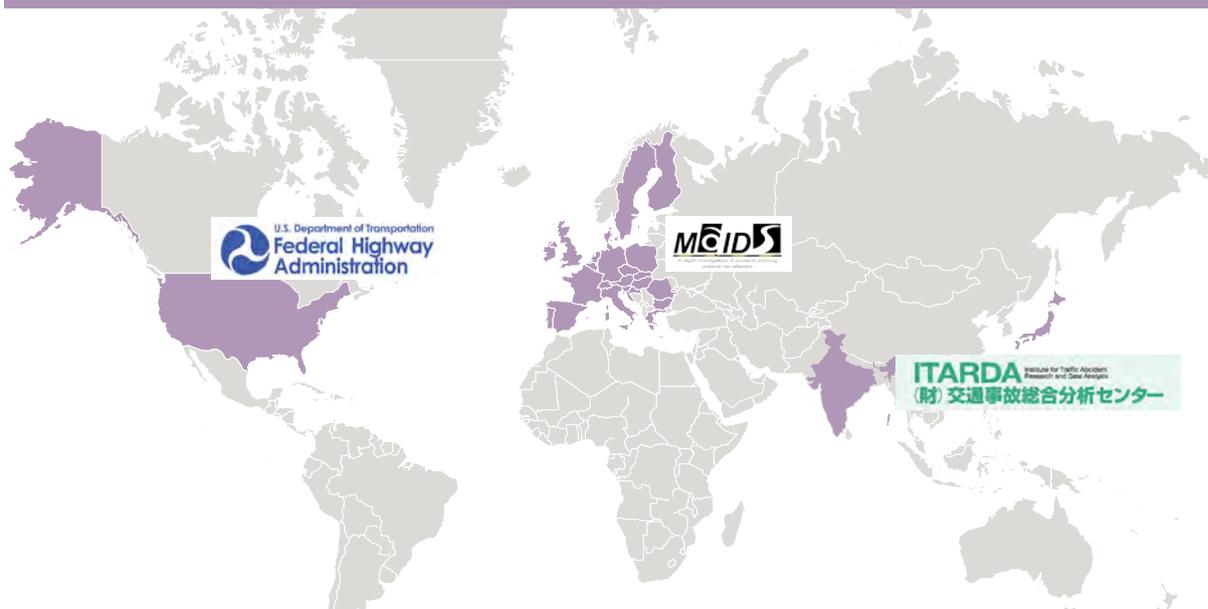
Subcategory	Examples	Aim/Results	Partners
Road Safety Awareness - Competitions/contests	1. Road Safety Mural Competition at schools, Malaysia www.mufors.org.my/Mural_Competition.aspx	First initiated in 2009, the mural competition drew interest of 250 schools nationwide (at final stage judges evaluated the artwork from 50 preselected schools). Due to the success of the first year initiatives, the contest is since then organised once every two years.	Malaysia Unit for Road Safety, Nippon paint, Berita Harian, and Ministry of Education
	2. FAMI Road Safety Photo Contest, Asia www.mdppa-inc.org/mdppa-safety-riding-on-two-wheels-photo-contest/ & www.aisi.or.id/news/detail/read/pengumuman-pemenang-fami-photo-contest-2012/	In 2011, Domestic Photography Contests (DPC) were carried out in Indonesia, Japan, Philippines, Republic of China, Singapore and Thailand. The best photos by country entered the FAMI Photography Contest with the main theme "Ride safely, enjoy life & be friendly to our environment". Industry members utilized awarded photos for creating promotional tools: poster, screen savers, calendars.	Industry
	3. Road Safety Culture Contest, Thailand www.dlt.go.th	The creativity of students for developing proposals for road safety improvements to be implemented at schools were at the core of the contest. An evaluation of the road safety habits of the students of the schools involved was also part of the contest. 129 schools participated in the contest held in 2012-2013.	The industry, The Department of Land Transport and Thai Police
	4. National safety riding contest, Japan www.jtsa.or.jp/topics/T-234.html	Launched in 1968. The contest is for individual riders and groups of riders. The contest promotes safe riding, meaning no accidents and no traffic violations and it is held in all Japanese prefectures. The winners of the prefectural contests are invited to compete in a national contest. 2012 marked the 45th edition of the Safe Riding Contest with 1,675 riders participating while the total number of participants including management, volunteers and spectators exceeded more than 10,000.	Japan Traffic Safety Association, Motorcycle Traffic Safety Promotion Committee
Road Safety Awareness - campaigns	5. Safety Ride on Highways campaign, Japan www.jama.or.jp/motorcycle/environment/pdf/prevent_accident_on_highway.pdf	To decrease the motorcycle accidents on highways in the light of the recent increase in motorcycle accidents. Around 100,000 copies of specially designed booklet for safe riding on highways distributed at motorcycle shows and stores.	Industry, Central Nippon Expressway Company Limited (NEXCO Central), Japan Motorcycle Safety Association (JMSA), Automobile Business Association of Japan (ABAJ), Japan Automobile Federation (JAF)
	6. Welcome to our family campaign, Canada	To increase safety awareness and educate riders to be safer road users. All promotional materials (posters, brochures, video, websites) are offered free of charge to motorcycle dealers and riders. Some materials have been even adopted by some provincial authorities in their road safety programmes. The industry works with government policy makers to employ incentives and occasional punitive measures to achieve better results. This program is to promote safety awareness by reaching out all new riders. The messages include available training courses, choosing the right bike, insurances, responsible riding.	Industry, Riders federations

	7. Moped safety promotion for commuting students, Japan	To promote safe riding amongst students commuting to school and train teachers to educate their students. To provide special training course for commuting students. Distributed promotional 20,000 brochures in more than 200 schools to students. Elaborated a special training manual for teachers. In 2012, seven training courses were conducted and 171 students trained.	Industry and Japan Traffic Safety Education Association (JATRAS)
Dedicated day/week for PTWs safety campaigns	8. National Road Safety Week, India	In the frame of the National Road Safety Week in India a multitude of safety activities implemented across the country – training and education for different group of riders, school programmes for schools and communication awareness campaigns. This activity was launched in 2000 and converted in an annual event. Approximately 1 million persons reached every year.	Industry, Training institutes, City Traffic Police and State Transport Department
	9. Motorcycle Day, Japan	To increase safety awareness of riders and other road users and to promote the enjoyment of motorcycling. Japanese Government has designated 19 August as the “Motorcycle Day”, since 1989. The industry has been hosting an event every year including talk shows, motorcycling workshops for children, and other demonstrations by professional riders. In 2013, the event attracted more than 1,000 people including riders and non-riders.	Industry, Japan Motorcycle Promotion and Safety Association (JMPSA), Tokyo Metropolitan Police
	10. Road Safety Jamboree, Philippines www.fami-motorcycle.org/news/news_20130916104759_13.pdf	Enhanced riders’ responsibilities as road users through their active involvement in team building activities, personal testimonies and dissemination and promotion of various awareness campaigns. The first Jamboree in 2012 gathered 300 riders. To reach more motorcycle riders and enthusiasts in local municipalities, two Road Safety Mini-Jamborees were organized in 2013 and attended by more than 500 riders.	Industry, Governmental Agencies, Motorcycle riders and Philippine National Red Cross
Road Safety Awareness - promotion of personal protective equipment	11. Proper Wearing of Helmets campaign, Japan	To educate riders to always fasten their helmets properly before starting off (according to the statistics 96.5% riders in Japan wear helmets, but 32.6% riders lost their helmets during accidents). The launch of the helmet campaigns goes back to 1971. Annual campaign that is implemented two times per year. In 2013, an interactive communication tool was introduced and broadcasted on public places in 40 big cities, 100 rest areas of highways and various websites.	Industry
	12. 100% helmet wearing campaign, Thailand www.aphonda.co.th/hondasafety/pdf/safety_news.pdf	This activity started in 2011 involving distribution of posters, education of riders and providing helmets. In 2011: 3100 riders reached, in 2012: 3570 riders.	Industry and Thai government
	13. Helmet standards, Canada	To promote the use of appropriate motorcycle helmets. Approved helmets are required in all Canadian jurisdictions. All provinces in Canada recognize the US, EU and internationally recognized institutes helmet standards. Recognizing all the above standards helps consumers to have more options in purchasing a helmet.	Industry, Provincial Ministries of Transport

	<p>14. Promotion of the benefits of protective gear for riders, State of Victoria, Australia www.tac.vic.gov.au/road-safety/tac-campaigns/motorcycle-safety#protective-clothing</p>	<p>To increase the number of riders properly equipped by creating subsidies and incentives. Riders provided with complete information about the benefits of protective gear in terms of safety and comfort and encouraged to use the relevant gear by offered incentives. However, there is a need of a functioning star rating system to verify the performance of the gear being subsidized or subject to an incentive.</p>	<p>Transport Accident Commission, VicRoads, Victorian road safety agencies.</p>
	<p>15. Promotion of personal protective equipment, Europe www.acem.eu/index.php/media-corner/publications/protective-equipment-for-riders</p>	<p>To encourage a wider take-up of protective gear, by providing some simple guidelines to the riders supported by scientific evidence. Released a booklet in several languages about the benefits of a good motorcycling equipment taking into account the specific riders' needs and climate conditions. On the very first day of the launch of the campaign the on-line English version was downloaded more than 5000 times.</p>	<p>Consortium of the European Safer Urban Motorcycling project (eSUM): PTW industry, Universities, City authorities: Barcelona, Rome, Paris and London, supported by the European Commission</p>
	<p>16. Promotional Helmet Campaign, Asia</p>	<p>To encourage PTW riders to use helmets and to do it in a proper and correct manner. The main activity of the campaign was a distribution of stickers that riders could put on their motorcycles. 500,000 stickers distributed in Indonesia, 10,000 stickers distributed in Thailand.</p>	<p>Industry</p>
<p>PTW Service check-up campaign</p>	<p>17. PTW Service check-up campaign, Thailand www.dlt.go.th</p>	<p>Conducted on national holidays (New year Festival and Songkran Festival), the PTWs service check up campaign culminated in 62,272 free inspections in 2012. This campaign will be organised on a yearly basis.</p>	<p>Industry and Governmental Department of Land Transportation</p>

Data & Analysis

Accident studies - better understand the causation of PTW accidents, target specific challenges and identify appropriate countermeasures



Title	Examples	Details/Results	Partners
In-depth accident studies	Motorcycle accident in-depth study (MAIDS), Europe www.maids-study.eu	The Motorcycle Accident in-Depth Study (MAIDS) was accomplished in 2004. The investigation was conducted during 3 years on 921 accidents from 5 countries using the OECD common research methodology. The survey produced approximately 2000 variables for each accident. MAIDS is the most complete available in-depth study in Europe. It is still the main reference for the industry and for all external researchers working in the PTW domain in Europe.	Industry, European Riders Association (FEMA), International Motorcycling Federation (FIM), FIA, German Insurance Association (GDV), The International Commission for driver testing (CIECA), supported by the European Commission
	Motorcycle crash causation study, USA www.fhwa.dot.gov/research/tfhrc/projects/safety/motorcycles/MCCS/	The Motorcycle Crash Causation Study is the most comprehensive investigation into the causes, rider demographics, and opportunities for countermeasure development to be conducted in the United States in more than 30 years. When completed, a large and unique data set will be developed that is derived from both actual motorcycle crashes and riders with similar risk characteristics and will focus on the unique circumstances that produce motorcycle crashes. The findings of the study can be used to develop effective countermeasures, craft future safety standards, and reduce the risk of fatalities and injuries for motorcycle riders across the United States.	Federal Highway Administration, Oklahoma State University, American Motorcyclist Association, Dynamic Science, Inc., Westat, Inc., Dynamic Research, Inc., Collision and Injury Dynamics, Inc., Department of Transport from few states, Industry
	Study characteristics of motorcycle accidents, Japan www.itarda.or.jp/itardainformation/english/info91_e.pdf	ITARDA study shows the characteristics of PTW accidents and helps to understand the evolution of the causation of PTW accidents in Japan that would lead to better tailoring proper countermeasures for safer motorcycling.	ITARDA (Institute for Traffic Accident and Data Analysis)

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