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Consolidated Resolution on Road Traffic (R.E.1):

Amendment proposals on policies for Powered Two Wheelers (PTW)

**Policies for Powered Two Wheelers for South-East
Asian countries and other low and middle-income
countries**

**Submitted by WP.1 Chair, Institute of Road Traffic Education,
University of Birmingham**

This document offers a consolidated view of the road safety policies in South East Asia and other low and middle income countries, with special focus on vulnerable road users including PTW users. This policy paper, once completed as stand-alone policy paper, is meant to offer a set of recommendations for developing countries in the context of implementation of the actions for the implementation of the transport-related Sustainable Development Goals. It will take into account the outcomes of the research actions implemented by IRTE with the support of NHTSA in the SE Asia and of the outcomes of the several Conferences held in Delhi, at IRTE premises, in 2016 and 2017.

Policy Making Guidelines for Vulnerable Road Users with Emphasis on Conditions found in South, Southeast Asian and Other Countries of Transition Economies

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Executive summary

This paper outlines the fundamental components of safety of vulnerable road users (VRU) for countries of transition economies and rapid motorization growth (such as those of South and South East Asia) with the view to offering a working document that can lead to the development of guidelines ancillary to the Consolidated Resolution on Road Traffic. The principles of the guidelines are directional, non-prescriptive, transferable and adaptable.

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Introduction

General

This draft paper addresses the need to recognise and therefore improve the safety of vulnerable road users (VRU) through the development of appropriate policies. It is offered for consultation with the Global Road Safety Forum members on the understanding that any policy and associated implementation strategy can only become practical and applicable if they explicitly recognise the cultural and social contexts of the affected countries and are tailored to the particular context of every country.

To this end this draft policy document has been developed based on a review of practices in Southeast Asia and in consultation with representatives of key stakeholders. It is envisaged that the principles, concepts and options offered hereinafter may be transferred following adaptation to countries with similar transport needs found elsewhere.

Policy transferability and replicability

This draft policy document should be viewed not only as a regulatory instrument but as a capacity building action of paramount importance for Southeast Asia and for other regions of the world as well. It is imperative that all countries are committed and implement the policy principles outlined hereinafter. It is also vital that the countries engage in policy dialogues and facilitate discussions and other inclusive actions on VRU safety to create new knowledge pertinent to VRU safety.

Definitions

- 1) Road users may be defined as **Vulnerable Road Users (VRU)** with regard to *'the amount of protection in traffic (e.g. pedestrians and cyclists) or by the amount of task capability (e.g. the young and the elderly)*. (Source: swov.nl). VRUs are *'non-motorised road users, such as pedestrians and cyclists as well as motor-cyclists and persons with disabilities or reduced mobility and orientation'*. (Source: ec.europa.eu/transport/themes/its/road/action_plan/its_and_vulnerable_road_users_en)
- 2) The following groupings of road users may be considered as vulnerable:
 - a) Pedestrians
 - b) Children
 - c) Elderly
 - d) Disabled
 - e) Cyclists
 - f) PTW (Power Two Wheeled Vehicles)
 - g) Learner and inexperienced drivers/riders
 - h) Horse and other animal riders

- i) Pedal, non-motorised vehicle riders
 - j) Man-pulled vehicles
 - k) Road workers
 - l) Animals
- 3) This document focuses chiefly on pedestrians, children going to School, the elderly and the disabled. It is envisaged that a more comprehensive policy can be developed when PTW safety is integrated with the policies suggested hereinafter together with those for the remaining groupings of VRUs shown above.

VRU issues in SE Asia and other developing countries ^[5]

- 1) The VRU policy should be based on the Safe System Approach.
- 2) Such a VRU policy should recognise the fundamental issues that need to be addressed to protect VRUs. Such issues should include the following:
 - a) Lack of
 - i) Data
 - ii) Understanding and recognising of local conditions
 - iii) Legislation and enforcement
 - iv) Post-crash care
 - v) Trained health care staff
 - vi) Coordination amongst the road safety concerned departments.
 - vii) Focus and defined responsibility pertaining to violation of guidelines.
 - b) Traffic composition
 - c) Development issues
 - d) Low income
 - e) Low literacy and education
 - f) Infrastructure and design
 - g) Rapid motorisation and urbanisation
 - h) Road safety audits
 - i) Role and responsibilities of road safety related authorities

Policy Issues

Fundamentals

- 1) Governments should develop policy reforms to address VRUs.
- 2) Transport, road and related policies should be socially inclusive and responsive to the societal and economic needs of countries of transition economies. They should explicitly recognise the vulnerability of certain categories of road users and address it strategically

by means of actions and implementation programmes. They should raise awareness of the existence and needs of these VRUs and the requirement to protect them when they use the road environment.

- 3) VRU policies should be sustainable in economic, societal and environmental terms. Unambiguous references should be made to the local needs, conditions and context of SEA countries.
- 4) VRU policies should integrate transport planning with health, environmental and gender issues.
- 5) Governments should engage communities in VRU planning and implementation programmes.

Evidence based policy

- 1) Evidence with regard to the VRU collisions should be gathered to develop specific policies tailored to the needs of SE Asia and other countries with similar traffic, economic and social features. As a minimum, data collection and analysis should aim at defining
 - a) Number of VRUs killed and injured
 - b) Cost of VRUs fatalities and injuries
 - c) Location of collisions
 - d) Time of collisions
 - e) Categories of VRUs, considering the local conditions

Measures ^[1, 6]

Integration with other road traffic safety policies

Governments, both central and local, should adapt and then adopt the resolutions for VRU using local knowledge and expertise without overlooking any of the fundamental concepts of road traffic safety. They should widen the participation of both the industry and stakeholders in the decision making processes for VRU and in the implementation programmes. Short and long term actions should be identified. Examples of such actions include:

- Short term
 - i) Focus on known VRU problem areas and consider the critical role of enforcement.
 - ii) On primary roads, non-motorised traffic turns may need to be banned using attractive traffic management options.
 - iii) Road safety audits
 - iv) Traffic calming measures should be introduced in both urban and rural locations
- Long term
 - v) VRU consideration should be incorporated into the road planning stage

- vi) VRUs should receive priority on lower category roads
- vii) On roads where VRU movements and flows dominate traffic flows, increased funding is needed to provide VRU facilities.
- viii) Enforcement, education and publicity actions should complement engineering measures in a timely manner and aim at road users' behavioural change.

VRU related Risks

Governments and road safety related authorities should minimise the risks for VRUs by addressing the following:

- Speed
- Alcohol
- Infrastructure design
- Visibility
- Enforcement of traffic law
- Unsafe driving
- Driver and VRU distractions (e.g. mobile phones)
- Driver fatigue
- Elderly
- Children
- Attitudes of VRUs and drivers
- Right-of-way of VRUs

VRU and Infrastructure

- 1) Road safety authorities should recognise the interaction between VRU and infrastructure and improve the design, construction, maintenance and operations of road networks.
- 2) Infrastructure should be forgiving and protective to the attitudes, errors and weaknesses of VRUs.
- 3) VRU strategies may include:
 - Physical segregation of VRUs from motorised fast moving vehicles
 - Traffic calming measures
 - Pedestrianisations
- 4) Facilities for VRUs may include:
 - Road shoulders
 - Pedestrian refuges

- Wide and flat-topped medians
 - Safe crossing points
 - Short distances between crossing points
 - Footways on urban roads
 - Footpaths along rural roads
 - Bicycle lanes
- 5) It is important to research and identify solutions associated with the patterns of VRU flows within areas of specific interest such as schools, bus and train stations, trade centres, local markets and rural communities.

VRU and Vehicles

- 1) Governments and authorities should define and enforce speed management strategies to reduce speed limits.
- 2) Decision makers at both political and administrative position should recognise the vulnerability of pedestrian and adopt appropriate policies.
- 3) Each fatal or serious injury accident should undergo a road safety audit to answer why such accidents happen and what steps should be taken to minimise, if not ensure that they happen again.
- 4) Road safety authorities should be made responsible and accountable for VRU's safety.
- 5) Actions that may raise awareness for VRU's include:-
 - a) Media campaigns highlighting the issue in a manner and to the extent where it jolts the polity.
 - b) Convey the matter of concern being voiced by public to different levels- public forums. NGOs , schools, colleges, local communities.
 - c) Convince and involve concerned politicians to raise the issues at political forum.
 - d) If required, take the option of going in for public interest litigation.
- 6) National and local governments, should clearly define the duties and tasks of those who are responsible for the safety of VRU's.
- 7) Ministries or Departments of transport (MT) should work closely with the highway, traffic, civic and education departments to achieve safety.
- 8) A comprehensive policy should deal with all issues of road safety including matters pertaining
 - a) Roads infrastructure
 - b) Driver licensing
 - c) Vehicle registration and certification
 - d) Control of Transport Vehicle

- e) Amending/Implementing Motor Vehicle Laws
 - f) Enforcement of violating not pertaining to traffic control and management.
 - g) Non-motorised traffic
- 9) It should also provide references to other policy documents such as those related to the Health, Education and Economy sectors.
 - 10) Traffic police should train their personnel in issues pertaining to engineering, education and driver training.
 - 11) Local authorities should recognise and understand their responsibility of providing a safe and efficient traffic infrastructure as defined and recommended by appropriate standards.
 - 12) Dedicated traffic and road safety engineering units should be established in local and highway authorities. Central and local authorities should take research and planning action for efficient management and control of traffic.
 - 13) Encourage public consultation in decision making.

Technology

- 1) Governments, road safety authorities, industry and stakeholders should encourage the development and use of appropriate technology in vehicles and infrastructure to protect VRU. Both low cost and high cost solutions should be identified, tested and subsequently used consistently. Local Universities and other research and development centres should be heavily involved in this process to produce viable solutions with regard to the issues likely to be found in the transport sector of SE Asian countries. Technology may concern:
 - a) Clothing
 - b) Electronic devices
 - c) Protective gear using locally sourced materials

Pedestrian Safety ^[2,3,4]

- 1) Governments should recognise the importance of pedestrian in modern transport and provide a road infrastructure for the safe and convenient movement of pedestrians
- 2) Governments should develop guidelines and rules to provide adequate road space for pedestrians.
- 3) Major encroachments on pedestrians' facilities should be considered as an offence.
- 4) Violation of all specified standards and rules should be a punishable offence as it compromise safety and enforced accordingly.
- 5) Authorities should not allow, for any political or other compulsion, pedestrian facilities to be encroached upon or assigned to other purposes. Such instances must be taken seriously as a violation of right of pedestrians.

- 6) Design and positioning of traffic control devices such as signals, signs and road markings including pedestrian crossings must conform to appropriate guidelines and standards.
- 7) Encourage the implementation of tried and tested technologies, especially those which are simple and inexpensive.
- 8) Research is needed for the application into developing different types of footways suited for different conditions in terms of local terrain and climate conditions.
- 9) Strategies to improve pedestrians safety may include
 - a) Relocation of road space by considering VRUs and other traffic flows.
 - b) Introduction of wider sidewalks where possible
 - c) Introduction of pedestrian pathway schemes.
- 10) Construction, Maintenance and Financing
 - a) The design of footpaths should be appropriate for the road class and depending upon aesthetics, history, culture, type and density of activities.
 - b) To ensure longevity, authorities should ensure that material used in pedestrian footways are not substandard and conform to stipulated standards suitable for the specific use and area where the pathway is being constructed.
 - c) Walkways and footpaths should not be congested or have obstructions including poorly designed or chosen street furniture.
 - d) Routine maintenance (e.g. cleanliness) of footways and footpaths should involve public participation wherever possible.
 - e) Funds could be allocated to residential associations, market and industrial bodies out of their tax structures to take over the responsibility of routine maintenance.
 - f) During road works and road repair activities, effective and proper signs and signals must be installed for protecting, warning and guiding all road users.

Safety of occupational pedestrians

- 1) Safety of occupational pedestrians working for road construction and maintenance should be recognised.
- 2) Traffic enforcement staff should be trained to protect themselves while working on road. Bright and reflective clothing should be provided for enforcement staff.
- 3) Barricades should have high visibility hazard warning lights.

A pollution free environment for pedestrians

- 1) Noise and atmospheric pollution harm the pedestrian directly. Therefore, planning of footways away from the carriageways and plantation of trees along pedestrian walkways need to be considered. Highways and town planning departments should develop plans for such pedestrian friendly footways.
- 2) Vehicle noise and unnecessary horn blowing should be minimised.

Vehicle design and pedestrian protection:-

- 1) Severity of injuries to pedestrians involved in road accident could be reduced if vehicle features, particularly the frontal design of bumpers, are re-engineered.

- 2) Research should be encouraged to identify improvement possibilities for vehicles likely to be found in South-East Asia and other similar regions, in collaboration with the automobile industry, Universities and research centres.

Educate and create awareness to the general public:-

- 1) Pedestrian should be made aware of the laws of road and the dangers they confront; this will help to make them defensive road users.
- 2) Pedestrian safety should address the follow:-
 - a) Poor visibility during darkness.
 - b) Carelessness and taking unnecessary risks.
 - c) Walking under the influence of drugs and alcohol.
 - d) Inadequate knowledge and awareness of rules of the road.
 - e) The perplexed rural citizen confronting the strangeness of the urban environment.
 - f) The negligence of the other road users.
 - g) Poor infrastructure on issues pertaining to safety.
- 3) The responsibility for road safety awareness should rest with the Transport unit. However strong collaboration with other departments, organisations and professionals is necessary to include
 - a) Education
 - b) Health
 - c) Vehicle licencing officers
 - d) The traffic police.
- 4) Road safety education should address
 - a) Schools.
 - b) Non-Motorised drivers, riders of cycle rickshaws, animal pulled vehicles and handcart pullers.
 - c) Local communities and villages situated on highways.
- 5) Sponsorship through print and visual media, radio programmes together with corporate support for all promotional activities should be encouraged.

Define rights and responsibilities of pedestrians:-

- 1) Legislation should be introduced to:-
 - a) Recognise that the pedestrian in an important traffic unit.
 - b) Define the rights and duties of pedestrians as road users with regard to the road classification system declared in road legislation.
- 2) Pedestrian who engage themselves in pulling, pushing, drawing vehicle for the purpose of any job including pullers of handcraft, food vendors on carts, rickshaw and other such people on the road where movement is regularly involved (except for their own walking)

should have a licence to do so. Furthermore, this licence should only be issued after the person has attended a class on basic road rules and laws.

Firm enforcement of such violations which directly infringes upon road safety:-

- 1) Traffic police and transport units should coordinate effectively.
- 2) Enforcement should address road traffic rules violations such as:-
 - a) Over speeding.
 - b) Rash and negligent driving.
 - c) Driving under the influence of alcohol and drugs
 - d) Violating traffic signs and signals.
 - e) Driving of bus without care to alighting or boarding passengers.
 - f) Footboard travelling.
 - g) Allowing bus passengers to alight or board at non-scheduled stops such as intersections, on stops signals etc.
 - h) Allowing passengers to board and alight on a running bus.
 - i) Driving on pedestrian area.
 - j) Parking on footways.
 - k) Driving under the permissible age limit.
 - l) Poor design and poorly maintained vehicles.

Scientific accident analysis

- 1) Scientific efforts has to be made to examine the real causes behind accidents. Scientific accident analysis and its data collection should be encouraged together NGO participation involvement of insurance companies as this would lead to cost saving and significant societal benefits.

The Elderly, the very young and the disabled ^[2,3,4]

- 1) Governments should recognise that a sizeable percentage of road users are disabled and to ensure that the disabled one provided with a degree of support as road users.
- 2) Governments should collaborate with all stakeholders in the areas of road and traffic engineering, vehicle design, training and bringing awareness to address the needs of the elderly.
- 3) Any approach for the elderly should be sensitive to both their needs and concerns. The latter may include marginalisation, patronisation and lack of respect.
- 4) The needs of the visually impaired should be recognised.
- 5) Welfare associations, parent and teacher associations, NGOs and village welfare organisations should be involved in decision making and in consequent actions.
- 6) Unaccompanied young children making their way to school and back are a very high-risk category.

- 7) Morning walkers, residents association and retired people form groups could assist children crossing roads and at bus stops. Their involvement in VRU safety plan shall be formally recognised and supported.

School children transportation ^[2,3,4]

Transportation of children to and from School for educational activities should be addressed with regard to the following areas:

Driver Training:

- 1) The drivers' credentials should be regularly scrutinised to ensure that they are properly qualified.
- 2) It should become mandatory for all drivers who drive school buses to undergo professional training, which should include some understanding of the behaviour of the children.
- 3) Proper medical examination must form a part of the procedures before a clearance is given to those who will drive school buses.
- 4) The same requirements are necessary for drivers of other vehicles which carry school children, taxis, tempo-vans, auto rickshaws.

Training of supervisors:

- 1) Supervision is required at all stages-during the bus journey and especially during the boarding and alighting stage. Supervisors may include:
 - a) The bus driver
 - b) Teachers
 - c) Older students
 - d) Parents
- 2) Parents in particular should be encouraged to participate in supervision. Training to all should be imparted on a regular basis.
- 3) Parents should also be made aware of the safety risks associated with the transportation of their children with their own vehicles as well as all other public and private transport vehicles.
- 4) Incentives to supervisors should be offered: for example a free pass system could be introduced to all supervisors.
- 5) Enforce a speed limit for vehicles used in school transport. For example a limit of no more than 50 km/h is stipulated for buses moving in urban areas.
- 6) Trip timings should be realistically planned by all corporations, schools and should be tested and reviewed regularly.
- 7) The maximum seating capacity should be enforced.
- 8) Mini vans could be considered for school transportation as well as taxis providing they conform to approved safety standards.
- 9) School children should be given the opportunity to participate in reviews of their transport to and from school although their views should be considered with care.

- 10) Every child using public or contract transport should be advised of their powers to protect themselves including how to fill a complaint form and to report negligence of driver and defective vehicles.
- 11) Transport authorities should be particularly diligent in the certification of school transport vehicles.
- 12) Regular checks especially during early morning hours should be made to check damaged vehicles, tyres, missing wheel nuts, overloading, excessive emissions and driver credentials.

Vehicle Features

- 1) Buses: Windscreen should be clean and kept free of add-ons (e.g. stickers, decoration etc.)
- 2) Auto rickshaws: Auto rickshaw manufacturers should be called upon to devise certain special add-ons in seating to carry school children. Such carrying capacity could then be allowed in the Motor Vehicle Regulations.
- 3) The use of rickshaws for school transport must also be brought under the umbrella of Law.
- 4) Rickshaw pullers should be trained as they are mostly uneducated and not aware of road rules and signage and therefore they ignore all safety norms.
- 5) These rickshaws must remain in specific localities and not be allowed to run on arterial roads.
- 6) Other modified vehicles: Road and Vehicle licencing authorities should develop regulations associated with a minimum set of safety standards for all vehicles used for School transport purposes and enforce them firmly.

Roads and their Environment:

- 1) Parking of buses – during boarding and alighting must be planned (with proper road markings)
- 2) Schools should invite Traffic and Municipal Authorities to jointly come to plan parking problems.
- 3) School patrol should be encouraged.
- 4) A code of practice should be developed and adopted by all who are associated with School transport to help improve the standards of safety. Such a code may cover the following:

Transport Services Contractors:

- 1) Ensure all vehicles are in good condition, clean and thoroughly roadworthy.
- 2) Ensure that the insurance cover indemnifies the passengers and clients.
- 3) Use only fully trained drivers and ensure that the vehicle papers are in order.
- 4) Equip all vehicles with a fire extinguisher and a first aid kit.
- 5) Check regularly the emission of the vehicles.

Safer School bus Design:

- 1) If possible the bus chasis should be lowered for easy climbing up and down even by the younger children. If it is not possible, then at least one more step should be added for this purpose.
- 2) The bus should have wide and functioning doors. If possible, it should have only one entry/exit door near the driver's side for easy control and emergency exits.

- 3) It should have a speed limiter to restrict its maximum speed to an appropriate speed, e.g. 50 km/h.
- 4) The exterior should be painted in a suitable colour to improve conspicuity.
- 5) The bus should have an adequate number of reflectors on its exterior.
- 6) It should, as a minimum, have four way flash lights, two in front and two at the back at eye level (e.g. 2 meter height). These should be activated whenever the bus stops on its route stops. This will give warning to other vehicle users and make them more careful.
- 7) The seating layout and the seat design should be based on economic and safety considerations. The use of seat belts should be encouraged or preferably be mandatory.
- 8) The bus should have a coloured signage board on all sides indicating that it is a school bus.

Safer Auto-Rickshaw Design:

- 1) To enhance the seating capacity the body should be broadened on sides. Additional foldable seats could also be added.
- 2) It should not carry more children than it can comfortably accommodate.
- 3) Through better design, proper storage system should be provided for keeping school bags.
- 4) The exterior should be painted in an appropriate colour to make it more conspicuous. If this is not possible for dual purpose (public as well as school children) autorickshaws, then at least a coloured signage board should be fixed on rear side indicating that it carries school children.
- 5) It should have an adequate number of reflectors on all sides as mentioned in safer bus design.
- 6) Research indicates that rear facing seats may be safer than front facing seats in case of frontal impacts. Therefore this principal may be used for making exclusive autorickshaws for carrying school children.

Safer Cycle Rickshaw Design:

- 1) Its exterior should be painted in a conspicuous colour
- 2) Signboards on all possible sides should be fixed indicating that it carries school children.
- 3) An adequate number of reflectors on all sides should be fixed.
- 4) The design should be modified to improve seating and storage capacity.
- 5) The braking system of good standing should be installed.

Safer Bicycles

- 1) The parents should choose appropriate bicycle for their children. The height of the bicycle should be such that the child's feet should easily touch the ground in normal sitting position. For this, the seat height should be adjusted if required.
- 2) For better conspicuity, the bicycle should have an appropriate colour (e.g. yellow or orange) visible during the day as well as at night.
- 3) It should have white reflector at front, red at the back and yellow on the sides.
- 4) The parents should check that the bicycle has a bell in working order.
- 5) Notwithstanding standard rules and regulations for the safe transportation of school children to and from school, any vehicle used for such purposes should be examined in terms of its suitability with regard to the following criteria:

- a) Economic Viability of school transport Vs Value of life.
- b) Convenience of service Vs licenced vehicle driver's responsibilities.
- c) Non-availability of public transport
- d) Lack of competition between Transport operators in terms of their safety records
- e) Parents, schools and their association should be made aware of the above and of the opportunities available to them both direct and indirect, to influence decisions and actions aimed at improving school children transport safety.
- f) Action plans for the provision of safe school children transport should be developed in consultation with and involvement of schools, parents association, Automobile Association, the traffic Police and NGO's.
- g) Lines of responsibilities for School Authorities, bus operators, drivers and any other party involved in school children transportation should be clearly defined. Vehicle and drivers licensing authorities should be made aware of their responsibilities.

Animals

- 1) Infrastructure related solutions should be provided to enable the safe movement of animals away from the road environment. Such solutions should seek to influence wildlife behaviour, physically separate animals from the roadway, influence driver behaviour, reduce animal population size and modify road design and planning.
- 2) Appropriate solutions may include reduced vehicle speed, increased median width, vegetation removal, warning signs, alternative alignment or road removal, fencing, underpasses and overpasses, boulders in the right of way, escape ramps, and temporary road closures.
- 3) Country specific research is required to identify solutions based on appropriate technology, local knowledge and experience.

References

- 1) Asian Development Bank. 1996. Vulnerable Road Users in the Asian and Pacific Region. © Asian Development Bank. <http://hdl.handle.net/11540/3007>. License: CC BY 3.0 IGO
- 2) Baluja Rohit, Powered Two Wheeler Safety in the South East Asian-Region, <https://www.unece.org/fileadmin/DAM/trans/doc/2016/wp1/ECE-TRANS-WP1-73-Presentation-7e.pdf>, Accessed 12/03/2018
- 3) Institute of Road Traffic Education, Pedestrian Safety, (2009) Internal Report, New Delhi, India.
- 4) Institute of Road Traffic Education, School Children Transportation, (2010) Internal Report, New Delhi, India.
- 5) UNESCAP, http://www.unescap.org/sites/default/files/3b.1_RoadSafety_TRasamit.pdf, Accessed 12/03/2018

- 6) WHO, ROAD SAFETY IN THE SOUTH-EAST ASIA REGION 2015, http://www.who.int/violence_injury_prevention/road_safety_status/2015/Road_Safety_SEAR_3_for_web.pdf, Accessed 12/03/2018

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