Hosted by
United Nations Secretary-General's Special Envoy for Road Safety
&
Ministry of Works and Transport of Uganda

United Nations
Economic Commission for Africa

UNECE

ROAD SAFEY PERFORMANCE REVIEW

Capacity Building Workshop for Uganda

Summary Report

1&2 March 2018
Hotel Africana, Kampala

I. Opening Session

On 1 and 2 March 2018, the Ministry of Works and Transport of Uganda jointly with Economic Commission for Africa (ECA), United Nations Economic Commission for Europe (UNECE), and, the United Nations Secretary-General's Special Envoy for Road Safety (Special Envoy) hosted a national workshop for road safety stakeholders across the country. The workshop was attended by over 100 national road safety officials, and focused on the topics of safe infrastructure and drivers training and testing.

The following speakers delivered their remarks during the opening session:

- Mr. Bageya Waiswa, Permanent Secretary, Ministry of Works and Transport, Uganda
- Mr. Jean Todt, United Nations Secretary-General's Special Envoy for Road Safety
- Mr. Robert Lisinge, Chief of Section, United Nations Economic Commission for Africa
- Dr. Nhan Tran, Coordinator, Unintentional Injury Prevention World Health Organization
- Mr. Benon Kajuna, Director of Transport, Ministry of Works and Transport, Uganda

On behalf of the Minister of Works and Transport, Mr. Bageya Waisa, Permanent Secretary (PS) of the Ministry of Works and Transport (MoWT) welcomed workshop participants and speakers. The PS of MoWT highlighted strong cooperation with the Special Envoy in conducting road safety performance review (RSPR) in Uganda and organizing the capacity-building workshop. He further encouraged participants of the workshop to identify existing issues and knowledge gaps and to take maximum advantage of the information and experience in the coming days.

Mr. Robert Lisinge welcomed workshop participants on behalf of ECA. Dr. Nhan Tran highlighting strong cooperation between UNECE, WHO and the Special Envoy and provided an overview of current efforts, including the global voluntary performance targets for road safety.

The Special Envoy expressed his appreciation to MoWT for requesting the RSPR and for making road safety a priority. He presented some global and regional statistics, suggesting that increasing urbanization, motorization, vehicle ownership and infrastructure development in Africa, would lead to an increase in road traffic fatalities, if no action is taken. The Special Envoy also emphasized the need to identify a national road safety champion; improve regulatory framework and encouraged Uganda to consider being a contracting party to six UN Road Safety Conventions, as well as to African Road Safety Charter and African Trans-Highway Agreement. Among other recommendations voiced by the Special Envoy was strengthening the National Road Safety Council (a statutory body designated by the Government of Uganda as a Lead Agency for Road Safety as recommended by the UN Decade of Action), improving data collection and management, enhancing education and improving post-crash care. In conclusion, the Special Envoy thanked the government of Uganda for their commitment to road safety and wished the participants a productive workshop.

Mr. Benon Kajuna, Director of Transport, reiterated his government's commitment to implementing the recommendations from the road safety performance report, including capacity-building in various areas of road safety management. The Director of Transport encouraged workshop participants to refresh their knowledge in the topics covered and to implement relevant improvements in their work, following the workshop.

The workshop was held in two parallel sessions, one on "Driver Training and Testing Component" and the other on "Road Safety Audits and Infrastructure Assessment". In the joint session, the UNECE expert presented an overview of UN Road Safety Conventions, focusing on the 1968 Conventions on Road Traffic and Road Signs and Signals, benefits of becoming a contracting party and steps of accession process.

II. Parallel Session I: Driver Training and Testing Component

1. Driver Training and Testing overview

Mr. Kharim Kibuuka - Ag. Principal, Inspector of Vehicles, MOWT provided a brief history of driver training and testing in Uganda, noting it had not been streamlined until 2010 when the regulations for licensing of driving schools and driver instructors were enacted and commenced.

Mr. Kibuuka noted issues of non-compliance with the regulatory framework, lack of proper classrooms and absence of qualified instructors.

Mr. Kibuuka noted progress in an improved image of the driver training industry, development of the driver training manual and curriculum and complementary activities of NGOs like Safe Way Right Way.

Mr. Kibuuka noted that in future, the government intends to operationalise the National and East African Curriculum, lobby for tax exemptions for driving school equipment and improve driver instructor training.

2. Driver Training and Testing in Uganda

Eng. Franklin Kugonza, Head of Inspectorate of Vehicles, Uganda Police Force informed the meeting that Uganda is divided into 26 policing regions each having an Inspector of Vehicles (IOVs) from the Uganda Police.

Mr. Kugonza detailed the process of acquiring a driving permit and noted challenges such as lack of adequate testing institutions and testing materials, limited workforce, failure to roll out the curriculum for driving schools and the inconsistencies in the process.

(*Photo of a learner after successfully parking the vehicle in the Box*)

Mr. Kugonza recommended introduction and enforcement of the driving curriculum, empowerment of IOVs through training as well as improvement and integration of the communication system amongst all the institutions involved in driver training and testing.

3. EAC Standardised Curriculum and Manual

Mr. Neil Rettie, Road Safety Project Manager, Transaid gave a presentation on assessment and testing of learner drivers of large commercial vehicles. The presentation covered the content of the theory and practical modules of the East African Community Standardised Curriculum and Manual for training drivers of large commercial vehicles (freight and passenger) and also the driving assessment mechanism associated with the curriculum.

The curriculum and manual includes the following modules: Driving Philosophy; Drivers' Welfare & Fitness to Drive; Traffic laws, rules, regulations and other relevant laws; Road signs, signals & markings; Basic Mechanical Principles; Defensive driving; HIV/AIDS awareness; Customer Care; Managing Incidents; First Aid; Transport Documentation; Environment & Transport; Carrying a Load; Basics of Driving; Reversing; and Negotiating the road safely.

While the driving assessment mechanism which is to be used for conducting driving tests for drivers who have undergone training under the EAC standardized curriculum includes, but is not limited to the following assessment areas: eye sight; vehicle checks; precautions; moving off; control; use of mirrors; signals; response to signs and signals; speed; following distance; junctions; judgment; positioning; formal stops; awareness and journey planning; ancillary controls and reversing.

There was a general consensus among participants that such a guide is welcome, however there is need for a guide on other classes of vehicles. Participants called upon the Government to roll out such guides to the driving schools.

4. Private sector efforts to improve driver training: A case study of Safe Way Right Way and Trans Aid partnership

The presentation was made by Ms. Barbra Mwanje, CEO, Safe Way Right Way. She demonstrated the role of the private sector in improving the quality of driver training. Having identified driver training as one of the areas that the government has not given much attention, a case study was presented to showcase how private actors can fill the gap and help improve driver training.

There was a consensus among participants that more private actor engagement was necessary in road safety activities and driver training initiatives, similar to the example of Safe Way Right way.

5. Driver Training Curriculum and Manual Overview

Mr. Paul Kwamusi, National Consultant, Uganda RSPR, provided an overview on the various aspects of driver training curriculum involving the instructor and trainee. Mr. Kwamusi discussed aspects of knowledge, skills, personality, and motivational qualities necessary of an instructor.

The responsibilities of Instructors, practical and theoretical training methods, as well as the existing laws and regulations were discussed. This was followed by topics covering the management of driving schools, adult training, classroom and off-road training, driving exercises, were handled in addition to driving tests, examination and certification of learner drivers.

Mr. Kwamusi emphasized risks of learners not completing training due to poor attitude of instructors and lack of encouragement. It was recommended that instructors do not rush learners to public roads with heavy traffic until fully prepared.

Participants inquired about access to the driver training manuals and emphasized the need to roll out and update the current manuals. Instructors were advised to ensure that all learner drivers complete the required six weeks training as required by law and to acquire newer vehicles. The need for translation of the manual and other laws into the local languages was also raised.

6. The Nigerian Experience

Mr. Ayobami Omiyale, Federal Road Safety Corps, Sokoto, Nigeria gave an overview of driver training and testing in Nigeria.

The application for a driver's license is only initiated by a graduate trainee and the Registration forms are available on the website of the Driving School Standardization Programme (DSSP): http://dssp.frsc.gov.ng/. Some highlights of the Nigerian system:

- The driving schools must have approval and certification of the minimum requirements, road worthy vehicles, licensed demonstrators, course manual, library with teaching aids, traffic and first aid laws, fire extinguishers for trainee drivers on how to use them.
- They are required to have an open space with road sign models and have both audio and visual instructors.
- There are distinct features in training vehicles such as the extra steering wheel and dual breaks that are used to avert calamity.
- The driving school sessions in Nigeria take a minimum of 26 hours divided into theoretical and practical trainings.
- The instructors are professional and the Road Safety Corps organizes trainer's workshops to equip instructors with extra knowledge and skills.
- There are also simulators which reflect the Highway Code to allow trainees to practice scenarios likely to happen on the road
- There is no dictation on where the Vehicle Inspection Officer (VIO) will conduct his test.
- There is also a driving range with actual road scenarios including traffic lights and road signs.
- The DSSP scheme was adopted and it has trained 1,450 drivers and 925 have been accredited and certified. More trainers and drivers have graduated from the scheme and the certificates can be verified.
- There were also notable challenges faced in Nigeria like more focus on the economic gains rather than the economic benefit, use of old vehicles and lack of conducive lane facilities.
- The suggested solutions to the challenges were consistent and continuous supervision, trainee feedback, penalization of default schools as well as monthly instructor training and continuous curriculum review.
- Emphasis on defensive driving and random checks in addition to a strict interface of the schools and the drivers' data base for strict follow up.

The presenter suggested that Uganda consider increasing the width of the road network, domesticating internationally recognized strategies, encouraging refresher courses for drivers, providing a safe monitoring environment, ensuring consistent and strong regulatory framework.

7. Modernisation of Driver Training and Assessment

The presentation was made by Mr. Neil Rettie, Road Safety Project Manager, TransAid, focused on the pros and cons of modernization of driver training and assessment, explaining that modernisation of driver testing would include computer generated random exams, markings and certificate indicating passing results.

The considerations for modernization, included need, capacity, location, fitness for purpose, corruption, facilities and equipment. This "modern" assessment was discussed in relation to both the theory and practical. The participants were divided into eight groups to discuss the pros and cons of modernized driver training and assessment at both practical and theoretical levels.

Despite the challenges in terms of costs, human resources, equipment and constant power supply necessary for modernized driver training and assessments, the general consensus among participants was that it should be undertaken.

III. Parallel Session II: Road Safety Audits and Infrastructure Assessment

1. Institutional Issues in Road safety for Uganda

Dr. Eng. Andrew Naimanye, team leader for Ugandan RSPR Report, gave a presentation on the institutional issues in Road Safety for Uganda and for developing countries. He made the following observations:

- Road Traffic Injuries (RTI) are a major and neglected challenge that requires concerted efforts for effective and sustainable prevention. However, the road safety issue in developing countries is different in many ways from that of developed world, and it is growing at an inordinate rate. In order to address the issue, it is vital to address/look at the broader dynamics of transportation system as a whole.
- When one looks at motorization trends, the number of motor vehicles have increased dramatically in the last 50 years. The 60 million motor vehicles worldwide in 1950, increased nearly 12 fold (to about 700 million) by 1990. If this kind of linear growth continues, by the year 2025, there will be well over 1 billion vehicles on the world's roads.
- Road traffic injury is a major global health, socio-economic and developmental problem. Rapid motorization in low and middle-income countries, along with the poor safety considerations during road design and construction and the lack of institutional capacity to manage outcomes contribute to the growing crisis.
- In socio-economic terms, countries around the world are paying a high price for motorized mobility. Country estimates indicate that the value of preventing road death and injury is equivalent to between 2-3% of GDP.
- Although the number of road traffic injuries has continued to rise in the world as a whole, time series analysis reveals that road traffic fatalities rates show clear differences in the pattern of growth between high-income countries, on one hand, and low-income countries on the other. In general, since the 1980s, there has been a decrease in the numbers and rates of fatalities in OECD countries. At the same time, there has been a pronounced rise in numbers and rates in many Asian, African, Middle East, and Latin American countries

- Much higher proportions of those reported as injured and died in road accidents are in the developing world, compared with industrialized countries. Whilst there is a general decline in the number of fatalities in developed countries, the opposite is true elsewhere.
- This pattern might appear to suggest that the rise in fatalities in developing countries is inevitable and ultimately will be self-correcting. The diversity of experience among countries shows that development alone will not necessarily solve the problem, and there is evidence that appropriate measures were taken to reduce injuries and fatalities in countries at all stages of development.
- The scale of the road safety challenge and the diversity of the effects of road traffic injury underline the importance of exploring synergies with other societal goals and priorities. Estimates comparing the cost-effectiveness of injury prevention measures indicate that improved traffic law enforcement in low- and middle-income countries could save 1 Disability Adjusted Life Years (DALY) for every $5 spent and that installing speed bumps to slow vehicles at the most dangerous intersections could save 1 DALY for every $9 spent.
- Vehicle numbers are rising dramatically. More than one billion motorized vehicles are driven on the earth today. Clearly, there is an enormous potential worldwide for increased use of vehicles, in particular, for rapidly developing economies of Africa.
- Mr. Naimanye also further stated that road traffic injuries and fatalities affect disproportionally the economic active population in Africa, and the economic and social consequences are quite severe.
- Mr. Naimanye determined that the problem is much bigger than common understanding and addressing road safety challenge takes a multisector approach. It often requires higher authority intervention during early stages of road safety challenges to ensure that all key agencies cooperate effectively.
- His presentation made the following recommendations:
    - Improve road crash data system;
    - Establish a road safety fund to finance strategies/activities related to the National Road Safety Action Plan (NRSAP) and NRSC activities;
    - Place road safety and NRSC under President *or* Prime Minister's Office, similar higher level office;
    - Allocate (like Japan) an annual national road safety budget of half of annual losses from road crashes to be spent by government ministries in consultation with NRSC in support of Action Plan;
    - Immediate appointment of a senior respected and powerful political leader with full authority to establish a more effective lead agency-management structure; and,
    - Explore possibility of establishing twinning arrangements with an OECD country to access the very best international experience, techniques and tools for transfer to local experts.

In the discussion following the presentation, the audience agreed on the following recommendation:

- Data on incidences and types of crashes as well as a detailed understanding of the circumstances that lead to crashes are required to guide road safety policy in Uganda. Knowledge of how crashes are caused in Uganda and crash type is a valuable instrument for identifying interventions and monitoring the effectiveness of such interventions.

- The need for garnering high-level political commitment to prevent road crash and injury in Uganda, assigning the full responsibility of the RTI and Deaths to the lead agency, and strengthening its technical and operational capacity.
- Securing sustainable funding from both local and international sources.
- Adopting priority interventions related to safe planning design of the road networks and addressing excessive speeding.
- Boda-boda use has become the leading cause of death and injuries on most roads. With more stringent regulation and enforcement, the boda-boda industry can thrive.
- A data recording system is vital in the understanding of road safety situation and development of effective countermeasures in Uganda. The accident databases are based mostly on information from police accident reports. It is well known, however, that in Uganda accident reporting is inaccurate and so the exact number of causalities are unknown. The issue of underreporting is well known and given the severity of road injuries and crashes, ignoring it is not an option.
- Death by speeding seems to be such a common occurrence in Uganda so much so that the citizens have become accustomed to their occurrence leading to terms such as 'Massacre Road' in reference to a road in Uganda known as Masaka Road. It is presumed on a weekly basis in Uganda, there is a tragic crash claiming lives of loved ones due to speeding, yet this is avoidable.
- Improving the delivery of emergency medical services;
- Promote road safety ownership and accountability among road authorities, road engineers and urban planners;
- Build capacities and facilitate knowledge transfer in safer infrastructure so that infrastructure development meets the mobility/access needs of all users in Uganda.
- High accidents due to inadequate engineering measures;

2. Status of the Road Infrastructure in Uganda

Ms. Racheal Nganwa, Africa Lead, International Road Assessment Program (iRAP) made a presentation regarding the condition of road infrastructure in Uganda using iRAP, a charity organization whose aim is to provide technological and technical support on safer road infrastructure in collaboration with governments and nongovernmental institutions.

Ms. Nganwa's presentation impressed on the *Safe System Approach* that provides a different way to look at crash causation, and the key crash types that contribute to fatal and serious injury. The traditional understanding of crash causation supported the perception that the driver or other vulnerable road user errors were the causes of most crashes and was therefore the major issue that needed to be addressed. While road user error is a contributing factor to many crashes, there are a number of key findings that challenge the traditional allocation of most causation to driver error (driver behaviour) and the associated notion that human behaviour can easily be altered.

Interventions with potentially greater effect were easily overlooked. Driver behaviour is a wide category and it is easy to populate by default when the evidence is incomplete or a better explanation is not available. Due to this perceived driver failure predominance, the main priority for many years was to concentrate on measures to change driver behaviour (rather than focusing on reengineering other parts of the road, vehicle or driver system) to eliminate the failures.

While achieving compliance with road rules by road users remains critically important, this approach alone will not achieve the desired road safety gains in Uganda. Safe design of the road environment needs to be accorded more focus if Uganda is to have a visible and high impact on reduction in fatalities and serious injuries. Safe roads are those designed to reduce the likelihood of crashes occurring and to be forgiving when they do occur. She reiterated the earlier point that as drivers are fallible, the road infrastructure in Uganda could be unforgiving in situations when road users make errors. The recent redevelopment of the infrastructure nationally has implicitly led to higher operating speeds resulting in increased severity of fatalities when crashes occur.

Ms. Nganwa's presentation highlighted the following strategies for enhancement of safer roads:

i. **Reduce Exposure**: *e.g.,* build separate facilities for pedestrians/cyclists, and define space/time for pedestrians/cyclist

ii. **Reduce Probability of a Collision given exposure** – increase driver's/pedestrian awareness;

iii. **Where 1 & 2 cannot be achieved, reduce the probability of fatality/serious injury given a collusion –** reduce vehicle speed

Ms. Nganwa also mentioned that in 2010, an iRAP assessment was made on 2,380 km of the Ugandan National Roads Network and 92km of the Kampala city centre roads. It provided some important insights into the safety performance, particularly the safety protection afforded to different road users. Overall, the survey showed that 17 per cent of the 2,472km network of road and 34 per cent of the same road attained a 3-star or better safety rating for vehicle occupants and pedestrians respectively. Cyclists and motorcyclists achieved 4 per cent and 14 per cent at 3-star or better, respectively. In the same survey, 83 per cent of the road length surveyed by iRAP is only 1 or 2 (black/red) star safety rated for occupants. The iRAP methodology, which employs the principles of the Safe System approach, recommended a number of cost-effective countermeasures to be implemented. For this assessment, iRAP developed a 20-year Safer Roads Investment Plan (SRIP), with a number of cost-effective counter-measures for the enhancement of safety of the road infrastructure for the country.

For the Capital City of Uganda, Kampala including key routes on the surrounding areas, there is an urgent need to focus on improving the road network's safety for pedestrians. The survey shows that 24% of the 185 km achieved a 3-star or better safety performance for vehicle occupants, and roughly 1% of the network results in a 3-star for pedestrians. Implementation of some of the proposed counter measures has been undertaken in Kampala.

Status of 185km of roads in the city (2017)

Start ratings – City Road Network – Baseline situation 2010								
Star Ratings	Vehicle Occupant		Motorcyclist		Pedestrian		Bicyclist	
	Length (Km)	Percent (%)	Length (Km)	Percent (%)	Length (Km)	Percent (%)	Length (Km)	Percent (%)
5 Stars	-	-	-	-	-	-	-	-
4 Stars	1	1	-	-	-	-	-	-
3 Stars	46	25	9	5	1	1	-	-
2 Stars	71	38	75	41	25	14	23	12
1 Stars	59	32	92	50	150	81	153	83
N/A	9	4	9	4	9	4	9	5
TOTALS	185	100	185	100	185	100	185	100

3-Star or Better:

26% = Vehicle occupants 15% = pedestrians

The presentation also highlighted the 2017 assessment which was part of Ugandan Road Safety Performance Review (RSPR), detailing the road inspections that were carried out along the same 185 km road network in the Kampala city centre and its surroundings. Unfortunately, little progress has been made in terms of safer infrastructure between 2010 & 2017. For instance, there has been no change in the km of 1-star roads for motorized transport. However, there has been a small improvement in 2-star roads becoming 3-star roads, and a commendable slight move into 4-star. For non-motorized transport, there has been a minor improvement in 1-star roads moving to 2-stars. Yet, there are still no roads rating for 3-stars for NMT. Improvements in occupant star rating could be attributed to improvement in pavement quality, widening of some of the junctions and road links to increase capacity, improved directional road markings, physical separation of vehicles while clearing roadsides, and provision of pedestrian refuges.

The Government of Uganda has invested heavily in road development over the last 10 years, however, road infrastructure is still being designed with the major focus on vehicle mobility (not driver's…). Pedestrian crossing facilities are not sufficient and there is little effort to accommodate 2-wheelers, coupled with lack of support for enforcement efforts. In fact, there are good laws in existence in Uganda for use of pedestrian facilities such as crossings and footways, however, enforcement of these laws has been lacking resulting in the abuse and deterioration of these facilities making them ineffective.

Some road safety audits are incorporated in planning, designs and road construction phase, but they are carried out in ad hoc and random fashion. Oftentimes, recommendations are neglected resulting in the loss of opportunities to construct safer roads.

The following conclusions/recommendations were made by the presenter:

- Although there are Road Safety Units/departments at UNRA, KCCA and there is a NRSC, these departments are poorly resourced and not empowered to undertake their roles effectively;
- Human resources to undertake road safety audits is inadequate nationwide – not taught at tertiary levels;
- The road network in most urban areas in Uganda has not adequately considered he movement of pedestrians, who represent the dominant mode;
- Prioritize the development of safer streets and mobility for vulnerable road users esp. in urban centres;
- Carry out road safety audits/assessments on all road development schemes and implement viable recommendations;
- Implement cost effective counter-measures recommended in the iRAP assessment of 2010 or undertake a new iRAP assessment, and implement the recommended outcomes;
- Agencies should take advantage of the available training both Nationally and internationally to develop internal capacity for road safety engineers;
- Prioritize NMT and enhance safety by giving pedestrian movements the highest design priority and making them the rationale which determines where and what infrastructure improvements or maintenance works are carried out;
- The government of Uganda should develop a Road Safety Strategy and a design standard specifically for urban centres focussing on global best practices for safer streets and mobility of VRU. In the same vein, government should consider teaching road safety in tertiary levels;

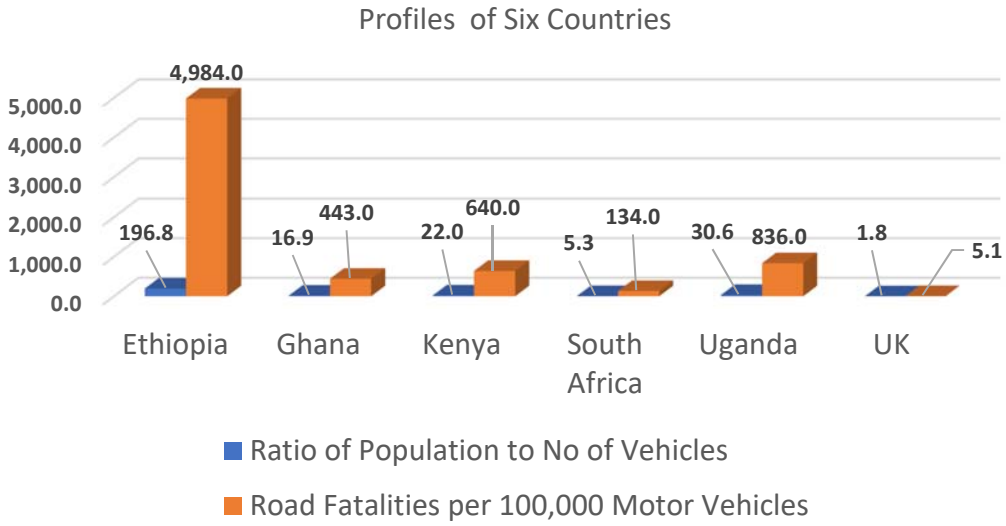
- The iRAP protocols and methodology should be embedded into the routines of the government engineers to ensure that development & maintenance regimes are focused on safety. Consider also setting a 3-star minimum iRAP target on all new and rehabilitation projects;
- Domesticate the various requirements of the 1949 UN Convention and its protocols – for which Uganda is a signatory. It has been noted that Uganda fails to comply with some of the requirements of the Convention on Road Traffic.

3. Lesson from Ghana & Ethiopia

During the morning session, the meeting received a presentation from Mr. Stephen Dapaah, CEO Traffic Solutions Civil Engineering, a UK based Consults. The presentation covered the following key areas:

i. Worldwide Road Safety Statistics;
ii. Overview of Road Safety issues in Sub-Saharan Africa (SSA);
iii. Lessons from Ghana;
iv. Lessons from Ethiopia;
v. Improvements needed in Uganda; and,
vi. Issues for Discussion.

He stated that road traffic injuries constitute a major health and development problem across the world but especially in the African region. Mr. Dapaah went on to elaborate the six country profiles from WHO's Global Report on Road Safety (2015): Ethiopia, Ghana, Kenya, South Africa, Uganda and UK *(See below).*



According to the WHO (2015) report, traffic accidents in Ethiopia account for the deaths of 25.3 persons per 100,000. This is 2.7 per cent of the total deaths in the country, and road traffic accidents deaths in Uganda reached 10,133 or 3.16 per cent of total deaths. The age adjusted death rate is 27.14 per 100,000 of population ranks Uganda 7th in the world. Ghana's death rate from traffic accidents according to the same report stands at 26.2 persons per 100,000, whereas it is only 2.9 persons per 100,000 die from road accidents in UK. Roads are becoming more deadly in developing countries.

Large regional disparities exist in the death rates of road traffic accidents, the risk being highest in the African region (26.6 per 100,000 population), and the lowest in European (9.3 per 100,000 population). Young adults (between 15 and 44 years) account for almost 60% of all traffic deaths, and half of the world's road traffic deaths occur among pedestrians (22%), cyclist (5%) and motorcyclists (23%). Proportion of deaths among different road user types show, however, considerable inter-and intraregional variation.

In many countries where the overall mortality rate is falling, road deaths have gone in the opposite direction. In some countries, roads are so perilous that the probability of dying from a vehicle impact is greater than from the most prevalent natural causes of death. In several countries on the continent, the likelihood of dying in a road accident is almost twice as high as that of dying from cancer, heart disease or stroke. For instance, in Kenya, road injuries claim lives 80% more often than heart disease, and a fifth more than stroke. Others like Burundi, and Zimbabwe are similarly affected.

Mr. Stephen also elaborated the inclusion of road safety in the UN's post 2015 framework of Sustainable Development Goals (SDGs) which was agreed unanimously by UN member States in September 2015, represents the UN's strongest ever mandate for action to promote road safety, *(i.e., road safety targets have been included in the final text of the SDGs: Goal: 3.6 and Goal: 11.2.).*

The presenter noted that a broad ***Partnership Approach*** to Road Safety is the most effective way to improve safety. Road safety work is a complex process involving different sectors. There is thus a need for a functional and effective institutional framework for the development and implementation of policies and programmes to prevent road traffic injuries. Though different institutional frameworks are possible, there is a need to identify a lead agency in government to guide the national road safety efforts. The Ghana National Road Safety Commission (NRSC) is organized in such a way that it acts as a ***'leading agency'*** in all areas involving road activities in the country**.** ***Collaboration and coordination*** are key to establishing and sustaining national road safety efforts. NRSC is responsible for the coordination of all stakeholders in the implementation of national road safety strategies. Each stakeholders' collaborating activities fall in at least one of the 5 pillars of road safety, and thus the implementing agency acts and report accordingly. For instance, NRSC collaborated with police for law enforcement by providing them training and law enforcement equipment, like speed radar guns, Alcometers, etc. They also collaborate with three Road Agencies and supporting road engineers in road safety audits, inspections and provision of road safety devices. The annual, an average budget of ***US$ 2 million*** secured from the different sources accounts for only half of the Commission's budget requirement.

Exemplar Areas to Emulate from Ghana-NRSC:

i. A dedicated Research Centre, Building and Road Research Institute (BRRI), serves as a central crash data center responsible for codding police crash records to a standard crash data collection format and store all crash data in central database;

ii. Very poignant road safety signs E.g. "**20 people died here so drive slowly** and **carefully"**

iii. Passengers have the right to arrest drivers who go contrary to traffic regulations without warrant.

iv. Stickers with inscriptions such as "Avoid Cell Phone Calls While Driving", Passengers Be Alert: Speak Up" and Your Seat Belt Is Your Safe Bet!"

Road Safety interventions in ***Ethiopia*** is in its infancy stage said the presenter. It is only a Council, which falls under the Ministry of Transport, responsible for leading Ethiopia's efforts to achieve the goal of halving road fatalities by 2020. Funding for road safety activities is not always assured. Records are kept by the Police but there is no central point of analysis - *very fragmented activity of incidents*

data management. In Ethiopia, the problem of road traffic accidents gets worse each year along with the economic and infrastructure development. Over the past 20 years, the Government of Ethiopia (GoE) spends nearly a billion dollars each year in road sector. The Government however spends far less on road safety interventions causing large increase in road fatalities each year. Thus, Ethiopia is one of the worst performing countries in the World for road safety. Furthermore, analysis on the reported traffic accident for the past 16 years shows that, both fatality and total crash doubled during the last ten years with an average increase 11.3% each year. In line with the above alarming problem, the EU supported the Technical Cooperation Program (TCP) to develop the National Road Safety Council's capacity to collect, manage and analyze data, as well as devise interventions and how to monitor their implementation. There is also some effort to establish an appropriate web-based accident data collection and analysis system.

His presentation finally suggests the following:

- The National Road Safety Council of Uganda should be structured on the lines of an autonomous Commission or independent office; Not as a department under the Ministry of Works and Transport.
- In addition, NRSC should be supported with adequate funding, manpower and resources.
- It must have a clear Road Safety Action Plan which is prepared by all stakeholders and a declaration agreed and signed by all to ensure their formal engagement and commitment.
- There must be maximum commitment from both political and technical leadership at Central and Local Government levels;
- The Public Transport Sector must be regulated for effective management and training;
- All Local Government and Education Sectors must all be stakeholders of the Road Safety Council;
- The Driver and Vehicle Licensing Authority (DVLA) must promote good driving standards in the country and ensure the use of roadworthy vehicles on the roads and other public places with annual inspection and testing.
- NRSC must try to conduct Public awareness through campaigns and integration of Road Safety in formal Education curriculum rather than the current uncoordinated efforts; and,
- Must adopt the Ghana System where a reputable organization serves as a central crash data centre responsible for codding police crash record to a standard crash data collection format and store all crash data in central database managed by crash data management software.

4. Uganda Road Safety Audit Manual Overview, principles of Road Safety Engineering Audits & Assessment

The presentation on road safety engineering by Dr. Eng. Andrew Naimanye covered aspects of accident reduction - outlining measures that can be used to reduce accidents. In terms of accident prevention; areas covered included measures such as road safety audits and assessments which are used to identify problem areas and then propose appropriate mitigation measures. The evaluation of a road scheme during design, construction and early operation to identify potential safety hazards which may affect any type of road user and to suggest measures to eliminate or mitigate those problems.

It is widely recognised that road and traffic engineering measures have an important role to play in contributing to safer roads. In recent years, there has been considerable emphasis on the treatment of accident 'black spots' and significant funding of remedial programs targeted at improving the safety of sites which have a demonstrated accident record. More pro-actively, good road design and well-developed traffic management measures produce roads which are safer and which are less likely to

develop as black spots, while road safety audit procedures can be used to attempt to ensure that both new and existing roads have potential safety problems removed before they lead to crashes. However, all of these outcomes are dependent upon the skill of the engineer responsible for the design or management of the road segment concerned.

The Uganda Road Safety Audit manual ((2004) was presented and delegates were led through the processes of undertaking a Road Safety Audits. A presentation was also made on how to undertake analysis of accident data through the use of long term averages; ***Poisson Test*** and *the* ***Chi-Squared test.***

5. The iRAP Methodology of Assessment/Process

The last presentation made by Eng. Racheal Nganwa is about the iRAP Methodology of Assessment/Process. The Road Assessment Programmes (RAP) are now active in more than 80 countries throughout Europe, Asia, Pacific, North, Central and South America and Africa. The International Road Assessment programme (iRAP) has drawn upon the extensive knowledge base of the developed world's road assessment programmes to develop a road survey methodology for developing countries. This Star Rating methodology doesn't require detailed crash data and works directly from road surveys. The ratings are an objective measures of the likelihood of a road crash occurring and its severity. The focus is on identifying and recording the road attributes which influence the most common and severe types of crash, based on scientific evidence-based research. In this way, the level of road user risk on a particular network can be defined without the need for detailed crash data, which is often the case in Africa where data quality is poor. Research shows that a person's risk of death and serious injury is highest on a one-star road and lowest on a five-star road.

Star ratings are also particularly useful in order to objectively quantify the level of risk associated with new road designs (where crash data is not present) enabling evidence based decisions and also for use in high performing countries where the relative low frequency of crashes limits the ability of crash analysis to influence performance monitoring and investment prioritization. After the background presentation, the iRAP Star Rating and Safer Roads Investment Plan process for undertaking assessments of roads and classifying them through star ratings was presented in detail way and a demonstration given to delegates that shows a list of affordable and economically sound road safety treatments, specifically tailored to reduce risk on the surveyed network. This technique provides help and guidance to road authority engineers, designers and others using the iRAP tools.

The audience raised the following issues:

- The quality of decision making in road safety and injury prevention is dependent on the quality of the data on which decisions are based. Therefore, the Ministry of Works & Transport of Uganda should develop a minimum data set, standard tool/software for collecting RTI data.
- Credible accident database is a crucial element for road traffic safety activity in Uganda, and is essential for the diagnosis, monitoring and evaluation of the crash problem in the country;
- Most boda-boda accidents stem from narrow roads getting congested with traffic. It is common in Uganda to see buses, taxies, lorries, motorcycles and pedestrians competing for roads' thin spaces.
- Adequate inspection of compliance levels by boda-boda operators is inadequate, hence the need to investigate the training level undertaken by motorcycle operators on Kampala road is critical;
- In many occasions, it emerged that there is a strong relationship between the mode of training by boda-boda operators and accidents occurrences;
- The government should address laxity by the traffic department of police in enforcement of traffic laws related to the boda-boda industry in order to ascertain sustainable compliance by operators;

- Little guidance exists on the mechanisms for transforming road infrastructure safety policy into relevant standards and guidelines.
- Engineering measures to upgrade the highways are inadequate.
- Inadequate enforcement of traffic rules and lack of awareness by the road users.
- Though mobility has been improved, vulnerable road users are sharing the same road space and the roads have inadequate safety measures for vulnerable road users;
- Proposed treatments may be inappropriate at a given location, thus, it's important that each countermeasure be subject to investigation/prioritization prior to design and implementation.

6. Road Accident Causation, Investigation and Prevention

Mable Tomusange's presentation highlighted road accident causation, investigation and prevention. The introduction began with the definition of key terms such as accidents, causation, investigation and prevention. The introduction also gave the statistics for road safety at global level, in Africa and for Uganda. Road accident Causation are brought about by four causal factors to accidents that includes vehicle factor, road factor, human factor and the environmental factors. The factors causing accidents are either pertaining to the vehicle status, or on the road condition or on the driver and on the environment. In explaining the causal factors, the epidemiological accident triad was used to further explain how accidents are caused at four stages of Vector, Host, Environment and Agent. In this case, the vector referred to the vehicles involved, the host being the human being, the Agent is the energy involved and lastly the status of the environment which can be the road condition, road furniture and or the weather. Therefore, the accident causes are at those 4 points and requires understanding.

Road accident investigation was portrayed as being able to be clearly understood by using the epidemiological triad, thus the triad can help in accident investigation. Furthermore, a thorough investigation may require the understanding of the road death, at scene situation, site situation, vehicle examination, witness identification, driver status, later compensations and the general ligation for those at fault.

Finally, prevention was given as a lasting solution to road accidents. Conceptual frameworks were given to clearly help one to understand the strategies that could be used in accident prevention. Four strategies were given starting with the Decade of Action for Road Safety that has 5 pillars (road safety management, safer roads, safer vehicles, safer road users and post-crash care). The Decade strategy uses a safe systems approach that was launched in 2010 and targeted to half all accidents, deaths and injuries by 2020. It is unlikely that Uganda will meet this goal. The Haddon's Matrix was also presented that uses both time and causal factors to control accidents. The Public Health approach was also sighted which includes steps of establishing the problem, finding out the causes, testing on what works, and lastingly implementing interventions. The fourth strategy of accident prevention was the 5E's approach of Education (awareness), Enforcement (laws), Environmental modification (products made safer), Evaluation (research) and Engineering (road designs).

7. Undertaking route and area wide studies: Analysis of accident statistics, estimating savings

A brief presentation on *Undertaking route and area wide studies* was given by Dr. Eng. Andrew Naimanye. He observed that when considering a group of accidents at a particular location as a series of events in time, it must be remembered that each accident is unique and has a unique *"chain of events"*. The essence of road accident analysis is to identify similarities between accidents and to establish factors common to a number of the accidents so that the "chain" can be broken. If the common factors relate to the road itself, then measures can be applied to the road which will reduce the likelihood of similar accidents occurring in the future. In order to identify the common factors in a group of accidents, each accident needs to be studied in some depth. It will always be necessary to examine the site where the accidents took place, and it is often be necessary to collect additional information such as traffic flows or speeds.

He went on elaborating the principle of road accident analysis is to identify and remove factors leading to road accident causation. Road accident problems could be tackled on a single site, a route or an area-wide basis. A group of single sites (or routes) displaying similar accident problems can be looked at together and treated on a "mass action" basis.

It is essential that any institution with an interest in road accident reduction should obtain an overview of the accident problems and patterns in the country. This overview will form the basis for comparisons between problem situations and expected levels. In addition to looking at an overview of accident problems, it is essential to have good quality data relating to individual accidents. In order to help assess the scale of the problem, road accidents can be ascribed an economic cost. This cost can be used to illustrate the overall scale of the problem in economic terms, and to justify the implementation of road safety schemes.

He also mentioned that before any attempts can be made to reduce road accidents, it is essential that the quality of the data relating to the accidents is of a high standard. In Uganda, it is Police who collects the basic data for road accidents involving personal injury. They also record a limited amount of data for some material damage accidents. The data is then collated by staff at the NRSC, and subsequently distributed to local authorities.

He also noted that it's often important to carry out some level of statistical analysis of the road accidents at a site. Annual accidents totals should be studied to establish whether there is an increasing or decreasing trend. Also the percentage of accidents that occurred in each month of the year, on each day of the week and in each hour of the day should be established to see if there is any obvious pattern. Information regarding day and time should be used to establish when to carry out the site visit.

8. Jinja Road Site Visit – Route Study (MoWT & Police)

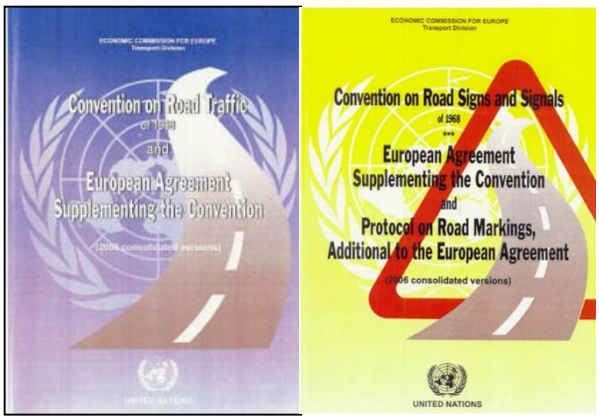
A site visit was undertaken and delegates were shown what to look out for when undertaking road safety assessments. The iRAP methodology for undertaking assessments of roads and classifying them through star ratings was also presented and a demonstration given to delegates.

The following points/topics were discussed during the discussion and group work:

- In order to carry out accident analysis work, it is essential to maintain an efficient set of accident records (database).
- An accident can be seen as a "chain of events", the three main contributory factors being the road environment, the vehicle and the road user, and, road accidents could be described as *"rare, random, multi-factor events"*.
- The principle of road accident analysis is to identify and remove factors leading to road accident causation.
- Road accidents are given an economic cost in order to quantify the scale of the problem and carry out economic assessment.
- Accident reduction and prevention strategies should be planned on both a local and national level in Uganda; and, it involves treating s ingle sites, routes, mass action sites and areas.
- Determine whether problems occur along the whole route, or are specific to individual locations based on historical injury accident data.
- Investigate options for treatment within a cost/benefit framework, and implement the scheme and monitor the results.
- Local authorities should look beyond road improvements to reduce road accidents, and the inter-action of different government agencies in this type of work is important. Engineers should work particularly closely with road safety officers (NRSC) and the Police.

IV. United Nations Road Safety Conventions

Lukasz Wyrowski, Economic Affairs Officer of UNECE made a presentation about selected United Nations road safety conventions mainly on road traffic and road signs and signals. In consideration was the 1968 Convention on Road Traffic and the 1968 convention On Road signs and signals.



- The 1968 Convention on Road Traffic provides rules on all aspects of road traffic and safety, and serves as a reference for national legislation. It describes all road user behaviour, such as what drivers and pedestrians must do at crossings and intersections. It promotes safe road user behaviour.
- 1968 Convention on Road Signs and Signals provides over 250 commonly agreed road signs, signals and road markings. It classifies road signs into three classes (danger warning, regulatory and informative), defines each and describes their physical appearance to ensure visibility and legibility. It focuses on safe infrastructure which contributes to safer mobility.

The presenter provided examples of benefits that transposition of the legal instruments offer and gave examples of comparisons of Ugandan current road signs and signals to those recommended in the conventions. Furthermore, Mr. Wyrowski discussed about the benefits of a state being party to the convention and called upon the Ugandan Government to ratify the conventions in order to access the benefits.

Steps to accession include:

a. Translate the legal instrument into the national language;

b. Conduct and provide a cost-benefit analysis, outlining the resources (fiscal or human) required for implementation (e.g. training, setting up certification authorities or enforcement agencies);

c. Determine a list of any required national legal reforms;

d. Consult with industry representatives and civil society to ensure full transparency and legal certainty for everyone affected by the new rules.

Mr. Wyrowski called for a passion and commitment to road safety through various road safety campaigns and involvement of local experts.

V. Workshop Wrap-up and Closing

After a summary provided by the parallel session group leaders, Mr. Katushabe Winston, Commissioner of Transport Regulation and Road safety from Ministry of Works and Transport-Uganda gave the wrap-up and closing remarks, on behalf of the Minister of Works and Transport.

Mr. Winston reiterated his Ministry's commitment to road safety and declared the two-day workshop a close.