Draft Event Summary

Regional EST Policy Dialogue and Training Workshop

Building Resilient and Sustainable Cities through EST Solutions & Measures ~ Realizing the 2030 Agenda for Sustainable Development

10-12 October 2017
Venue: Asian Institute of Technology (AIT), Pathumthani, Thailand

I. Introduction

As an integral part of the Asian EST Initiative, the United Nations Centre for Regional Development (UNCRD) has been implementing capacity building activities on sustainable transport. The Regional EST Policy Dialogue and Training Workshop with the theme of "Building Resilient and Sustainable Cities through EST Solutions & Measures ~ Realizing the 2030 Agenda for Sustainable Development" was organized by the United Nations Centre for Regional Development (UNCRD) of Division for Sustainable Development (DSD) / UN DESA from 10 to 12 October 2017 at AIT, Pathumthani, Thailand. in collaboration with the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), the Ministry of Transport (MOT) of the Royal Thai Government, Asian Institute of Technology (AIT), the Ministry of the Environment of the Government of Japan (MOEJ), the Federal Ministry for Economic Cooperation and Development, the Government of Germany, German International Cooperation (GIZ), Sustainable Urban Transport Project (SUTP), Transformative Urban Mobility Initiative (TUMI) and the Partnership on Sustainable, Low Carbon Transport (SLoCaT) The training workshop was supported by the Institute for Transportation and Development Policy (ITDP), 100 Resilient Cities, and ASUA, Japan.   The training workshop was organized as a follow up to the recommendations of the 9th Regional EST Forum in Asia (2015, Kathmandu) and in support of building capacity of cities and local authorities towards achieving SDG 11 to make cities and human settlements inclusive, safe, resilient and sustainable.

The Regional EST Policy Dialogue and Training Workshop was attended by about hundred participants from 34 cities in 21 countries (Australia, Bangladesh, Bhutan, Cambodia, People's Republic of China, Germany, India, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, United State of America, Viet Nam), including city officials, international resource persons, representatives from United Nations and international organizations, scientific and research organizations and non-governmental organizations (NGOs). A total of 21 city Mayors/Vice Mayors attended the training.

II. Welcoming Remarks

1. *Mr. Surendra Shrestha, Vice-President for Resource Development, Asian Institute of Technology, Thailand*

   Just fifty years ago there was only one city in the world to have more than 10 million – New York City. Now in Asia alone 20 cities have more than 10 million. Geographic balance of economic power is moving from West to East, first from Europe to North America, and now to Asia, indicating that the 21st century will be an Asian century. Things developed here will be replicated in other developing areas, meaning that Asian cities will lead how mobility and cities are structured for the coming 100 years. Government is looking at SDGs. Development in the context of depletion of natural resources. Within 3 decades, 60% of all economic growth will be in cities, and there will be 3 billion middle class individuals with middle class desires. Climate change and urbanization are key forces that need to be dealt with – and used in mobility plans. Today, cities are still not able to solve first/last mile problems – but what would cities look like if mobility were treated more like an on-demand service? People need to learn more about how to share, and how to approach problems from a social perspective, increasing trust, increasing diversity and leading to society-friendly cities.

III. Opening Addresses

2. *Mr. Choudhury Rudra Charan Mohanty, Environment Programme Coordinator, UNCRD/UN DESA*

Choudhury Rudra Charan Mohanty, Environment Programme Coordinator, the United Nations Centre for Regional Development (UNCRD) of the Division for Sustainable Development (DSD)/UN DESA, welcomed all the delegates to the training and thanked the co-organizers: United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Ministry of Transport (MOT) the Royal Thai Government, Asian Institute of Technology (AIT), Ministry of the Environment of the Government of Japan (MOEJ), Federal Ministry for Economic Cooperation and Development, Government of Germany, German International Cooperation (GIZ), Sustainable Urban Transport Project (SUTP), Transformative Urban Mobility Initiative (TUMI), and Partnership on Sustainable, Low Carbon Transport (SLoCaT), and partners and supporting organizers: Institute for Transportation and Development Policy (ITDP), 100 Resilient Cities, and ASUA, Japan. He continued to outline the topics of the training workshop, that cities are growth engines contributing more than 75% of global GDP, but also create risks. Asia-Pacific region is highly vulnerable to natural disasters and climate impacts. How can we address sustainability and resilience while keeping in mind growth dynamics in the urban sector? Transport is highly vulnerable to climate change, but not necessarily. The fact is that climate considerations are not always included in transport policy and planning, including infrastructure development. The 2030 Agenda and SDGs have provided an important framework for countries and cities to achieve sustainability in all key development sectors – agriculture, transport, trade, industry, mining, water, and urban development, etc. Sustainable transport provides an important thread to all the SDGs and towards "urban resilience". A road network system or design without a drainage system is not resilient during flooding events. Likewise, without dedicated walking and bicycle infrastructure, there will be more injuries and fatalities, thereby reducing the resilience of local community. In general, making cities inclusive makes cities resilient, and sustainability in turn reinforces inclusiveness. Lack of accessibility and connectivity negatively influence the socio-economic resilience of the community and also reduce the resilience of communities during extreme climate events or natural disasters. There is a need to unlock low carbon transport solutions to achieve the landmark Paris Climate Agreement of COP 21 which calls to combat climate change and intensify actions and investments for sustainable and low carbon future to limit the average global temperature rise well below 1.5 degree Celsius.

3. *Mr. Madan B. Regmi, Economic Affairs Officer, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)*

Recalled 11.2 Safe, accessible transportation system for all. Cities need to enhance sustainability of urban transport systems. Government challenges – tackling issues of congestion, pollution, etc, can improve traffic, health and quality of life. Many governments are already taking action: Integrated transport planning, sustainable public transport, ICT and intelligent transport systems, assessment of existing transport systems and improvement of services. Improving resources and project management skills. ESCAP developed a 10-unit indicator for sustainable transportation. Investment, health, etc. Serves to measure progress. The SUTI was being piloted in 4 cities – Colombo, Greater Jakarta, Hanoi and Kathmandu. Further discussion will be held this month in Colombo. Impacts of climate change are local, but impacts are localized. Cities need to include climate change in their planning and design processes. 56% of road fatalities are in vulnerable regions. Many governments are implementing road safety policies, but more needs to be done. Safety infrastructure, driver behaviour, enforcement helmets, improving green freight and eco-mobility. UNESCAP stands ready to support cities in sustainable transport.

4. *Mr. Yoshinori Suga, First Secretary and Alternate Permanent Representative of Japan to ESCAP, Embassy of Japan in Thailand*

Mr. Suga mentioned that the urbanization, rapid population growth, air pollution, large-scale disasters, climate change, fatalities, etc. are the important topic to be addressed by the Asian cities. Therefore, there is a need of

climate and disaster-resilient transport systems. Infrastructure is used a long time after it is built. Need to use EST in advance. The EST forum has expanded from Kathmandu, hopes to see sustainable transport for people. He also wished all a happy and productive discussion with learning and exchange of new ideas and best practices.

5.   *Hon. Mr. Teerapong Rodprasert, Vice Minister, Ministry of Transport, the Royal Thai Government*

The Honorable Vice Minister welcomed to all distinguished participants. of the Regional EST Policy Dialogue and Training Workshop. He appreciated to MOEJ, UNCRD, UNESCAP, GIZ for organizing this training workshop. Environmentally sustainable transport has become a promising topic across the world. The 12 years of EST have represented strong determination to move to sustainable transport development in order to reach sustainable development goals as part of the overall global agenda. Since the first EST Forum, the Aichi Statement in 2005, the Bangkok 2020 Declaration in 2010 and the latest Vientiane Declaration were adopted by countries. Asian countries and cities should focus on formulating a regional transportation framework that is energy efficient, user-friendly, and integration of sustainable transport and land-use planning. However, to get a common understanding across Asia, the recommendation from all stakeholders should be required. Cooperation and dialogue between various stakeholders will be required. The Vice Minister expressed hope that the workshop would lead to greater EST in the region and wished all a pleasant stay in Thailand and the workshop a great success.

IV. Introductory Session: Roots to Resilience

6.   *Choudhury Rudra Charan Mohanty, Environment Programme Coordinator, UNCRD/UN DESA*

Mr. Mohanty introduced the Asian EST Initiative and the objectives of the Policy Dialogue and Training Workshop. A number of mechanisms to assist cities to build resilience including vehicle emissions standards and inspections along with a focus on accessibility and connectivity were discussed. The speaker called for a focus on enhancing the sustainability and inclusiveness of cities and building consensus on what 'environmentally sustainable transport' means and what are the key elements of an integrated strategy. The speaker called for a shift from fragmented approaches to strategic actions.

7.   *Roots to Resilience – Experiences of 100 Resilient Cities – by Lauren N. Sorkin, Regional Director, Asia Pacific, 100 Resilient Cities*

The speaker introduced the 100 Resilient Cities, noting that 7 cities at the training session were members of the initiative, which is based in Singapore in the Asia-Pacific region. Urban resilience was defined as the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience. Requires input from all stakeholders outside government including stakeholders and experts. Resilience is usually associated with planning for specific disasters. However, there is a holistic point of view to take. It is not just about shocks, but also stresses – slow burning challenges – poverty, sea level rise, inadequate transportation. The example of Medellín, Columbia was cited. In 1988, the city was the most dangerous in the world, due to out-of-control population growth, and poorly planned systems, resulting in a transfer of control to drug cartels. In the 1990s, the government took comprehensive approach to engage the city, taking a view that education, culture, libraries, safety, public spaces are all interconnected. The city built libraries in dangerous places, giving the public a place to collect, and built a cable car public transport system over the city to allow people to access more public services and jobs. Homicide decreased 95% and poverty fell by 20+%. 100 Resilient Cities, sponsored by the Rockefeller Foundation, works with cities to hire a chief resiliency officer to coordinate efforts and stakeholders, breaking down silos. It also provides a network to communicate about resiliency between cities. The City Resilience Framework is comprised of twelve drivers over four categories. The example of Semarang, Indonesia discussed resiliency issues in the city, looking to find co-benefits of sustainable transport to reduce

GHG emissions and air pollution. Although plans were developed, the next question remaining is on how to finance them.

V. Module 1: Environmentally Sustainable Transport Main Principles and Impacts: International Best Practices

8.   *Principles and impacts of public transport improvements, NMT, TDM, land use planning, institutions and integration – by Manfred Breithaupt, GIZ Consultant.*

The adverse implications of growth in motorization of urban transport are severe, with significant impacts on quality of life in cities as well as on local and global climates. Almost all forms of transportation are more efficient than private cars if looked at from the perspective of trips traveled per amount of money, space invested in transport, or even from the perspective of road safety. Theories and global agendas are coalescing around more sustainable forms of transport, including the Sustainable Development Goals, New Urban Agenda and others, but local political will and long-term goal setting and follow-through is necessary in order to achieve sustainable transport. Nine principles of sustainable urban transportation were presented:
   a) Strong political will and longer-term goals
   b) Strong and powerful unified metropolitan planning authorities (Singapore and the Hong Kong Special Administrative Region of the People's Republic of China were offered as examples, as well as Sustainable Urban Mobility Planning in Europe)
   c) Urban development and integrated urban transport and urban land-use planning (e.g. Transport Oriented Development)
   d) Public service transport reform (making public transport more professional and attractive and giving it higher priority, closer to the people)
   e) Enhance and maintain safe non-motorized transport (NMT) infrastructure
   f) Integrate all modes of public transport (including informal transport) with NMT and shared mobility offers to make public transit efficient and desirable from the rider's perspective
   g) Implement transport demand management (TDM) using a push and pull approach (i.e. using tools to reduce demand instead of increasing supply of transport service and infrastructure)
   h) Finance
   i) Sharing knowledge and transferring experience (GIZ and others offer many types of training courses and manuals for city managers and officials)

9.   Discussion after the introduction of the nine principles focused on the discussion of the meaning of resilience and relationship to sustainable transportation. Sylhet City, Bangladesh, took resilience from the disaster vulnerability point of view, with the city trying to incorporate water and flood management into its planning, while sanitation and housing are key for integrating urban poor into cities. Kathmandu, Nepal discussed resilience as ability to rebound from the recent earthquake that struck the city and integrating mass transport policy into the rebuilding effort. Chandigarh, India, focused on cycling as a means to achieving resilience, having constructed major infrastructure and bicycle sharing programs, while Pune, India discussed integrated high capacity mass transit into its plans. Chengdu, P.R. China, described its focus on reduction of air pollution from the transport sector with a "green + slow down" transport policy by increasing construction of urban rail and cooperating with private sector bike share companies. Meanwhile, some cities had challenges in rolling out sustainable urban transport and resilience. Thai cities need to content with the strength of the auto industry in the Thai economy, and some cities have problems with proper implementation of measures.

10. Cities were encouraged to discuss the top five areas of focus they would make in developing a project proposal for urban resiliency. Jambi, Indonesia, noted that it would focus on pedestrian facilities, cycling and public transportation. Meanwhile, Nepal cities might focus on disaster reduction management in old cities, sanitation and access for garbage collection vehicles, and phasing out old vehicles to deal with serious pollution. Smaller Nepal cities would focus on road improvement. Thimphu, Bhutan noted that it is focusing more on encouraging off-street parking, removal of on-street parking, and encouragement of public transport services.

Ulaanbaatar, Mongolia, noted that it might focus on BRT and moving universities and other public entities outside the city center as well as encouraging companies to stagger their working times in order to manager peak traffic times, while Phnom Penh noted that it might focus on traffic reduction, its drainage system and waste management.

VI. Module 2: Zooming in on Regional Resilience Plans for Urban Transport Services and Infrastructure

11.   *State of Urban Transport in Asia and Sustainable Urban Transport Index (SUTI) for Asian cities– by Madan B. Regmi, Economic Affairs Officer, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)*

A presentation was made focusing on the major policy agendas around sustainable urban transport, including the UN Sustainable Development Goals (SDGs), the New Urban Agenda and HABITAT III, and the Regional Action Programme on Sustainable Transport Connectivity (2017-2021). The trend towards urbanization of Asian populations was made clear, along with trends towards motorization and congestion of cities, and newer trends towards rail transportation and public transport infrastructure. The Sustainable Urban Transport Index (SUTI) was introduced. The SUTI is meant to measure progress towards SDGs in Asian cities; summarize, compare and track performance of urban transport in cities, and facilitate discussion with a simple approach. A comprehensive approach was taken to development of the SUTI resulting in 10 indicators in four domains: transport system, plus social, economic and environmental domains. Since scores are normalized, they cities can be compared across these indicators. The SUTI was being piloted in Colombo, Jakarta, Hanoi and Kathmandu.

12.   *Presentation: Transportation Infrastructure Development in Thailand: Go Green or Go Grey? – by Surachet (Chet) Pravinvongvuth, Assistant Professor from Transportation Engineering, AIT*

A presentation was made focusing on the choice that cities need to make between clean and dirty modes of development, with a focus being made on setting the direction of urban development, or the "Northern Star" what guides development. Even though tactics may require a shift away from the general direction, the general direction of development should be towards clean development. Bangkok faces some of the worst congestion in the world, and the congestion only gets worse when nothing is done about it. Supply of infrastructure for private transport always grows slower than demand for transport, so cities cannot build their way out of congestion. Government intervention in an unbalanced market is necessary, and therefore government support to mode shift is required. Bangkok faces the challenges of multiple redundant agencies managing traffic and transportation, even duplication of rail and road networks between cities, resulting in land use challenges in cities. The country also faces some policy contradictions, with support for shift from road to rail announced, but also subsidy for people to buy their first cars. The conclusion was that government should have "The Plan", not "plans" for transportation.

13.   *Discussion: Resilience and transport – Experience of BMA – by Supachai Tantikom, the Chief Resilience Officer for Bangkok (BMA), 100 Resilient Cities. Ms. Lauren N. Sorkin, Regional Director, Asia Pacific, 100 Resilient Cities moderated.*

A panel was convened between Mr. Supachai Tantikom and Mr. Madan Regmi (UNESCAP) to discuss resilience and transport. The importance of learning how to think together about resilience projects in cities – especially with the help of a consultant – was key to changing city direction. In Bangkok, U-turns are a major cause of transportation problems. Infrastructure is built in such a way that people don't have opportunities to turn around to go in the direction of their choice, but also people are in too much of a hurry and do not have time to consider their personal driving habits on the overall system. It is key to remind people about road safety and that if they are killed or injured in traffic, it is their families who will suffer most. One issue is urban planning in general – there are so many activities along roads, and few options for avoiding the situation.

Pune, India, noted that there were many political questions around BRT and cycle track installation, and it was noted that public transit needs to be prioritized above private cars. This will help move more people faster, and when people can move faster, political issues may be resolved.

VII. Module 3: Transforming the Urban Spaces through Street Design

14.   *Transforming the Urban Spaces through Street Design – by Deng Han, NMT & Urban Development Program Engineer, the Institute for Transportation and Development Policy (ITDP), China.*

The speaker provided a clear summary of a range of options for using street design techniques to transform urban spaces. The presentation started by pointing out that even if there is street design elements to encourage alternatives to private vehicles they can often be interrupted or inadequate to encourage alternative options. The presenter encouraged a focus on "Access for All" to deliver inclusive street design. Key aspects include a shift in focus from engineering oriented approaches to integral space environmental planning (that allows for multiple modes). The speaker emphasized that it is important to identify best practices from Asia to compliment western examples (in areas of pedestrian facilities, options for universal access and non-motorised vehicles, transit integration, traffic calming techniques, green infrastructure inclusion, visibility and information provision to users, and effective space use).

15.   The speaker mentioned a number of street design mechanisms to calm traffic use and encourage alternative modes such as: reconsidering the width of roads and pavements, the potential for shading of walkways, raising pedestrian crossings to footpath level, minimizing turning radius to both slow vehicles and reduce the on-street crossing distance, and incorporate refuge islands. The speaker encouraged the design of an integrated network of demand points and cycle ways that uses pavement colours line-marking to clearly delineate bike lanes and crossings to both help bike users stay in appropriate lanes and also signal to other users where the allocated areas are. The speaker presented a case study of universal access using a smart card system at road crossings for pedestrians to extend the crossing time to allow greater time to cross if needed.

16.   *Land-use Planning Principles and Transit-Oriented Development (TOD) for Resilient cities and Communities – by Li Wei, Senior Engineer, the Institute for Transportation and Development Policy (ITDP), China.*

The speaker focused on presenting a summary of the base principles of transit oriented development and provided examples. The speaker pointed out that access is declining in many cities as the percentage of the population that is living close to transit stations is decreasing while the city grows. The speaker summarized TOD as development that focuses on high density mixed land use within a friendly walking and cycling environment. The speaker presented a number of preferred aspects of TOD such as: Safe and complete walkways for all users; Safe and complete crosswalk for all users; Visually active street frontages and physically permeable street frontage; Comfortable environment for walking with shade and shelter; Safe and compete cycle network with secure and ample parking facilities; Walking and riding paths are short and directly connected; Locating development near high-quality public transport; Planning for mixed uses, incomes and demographics; Encouraging a diversity of land uses and available services (such as schools, health care, grocery stores, and parks). The speaker highlighted the need to achieve a diversity of people, ages, and incomes thorough providing affordable housing as well as preserving existing infrastructure. The speaker then provided examples of shifting land use away from car parking and towards greater community and transit utility and called for greater government involvement.

17.   During the question period, Mr. Mohanty reflected on the speaker's presentations by sharing that we need to consider how to integrate rapid urban development with public/rapid transport options, especially along high density corridors. Mohanty then called for a focus on consideration of how this may bring benefits to all part of the society.

VIII. Module 4: Tools for Resilience-Checking/Proofing from Planners' Prospective -Including Examples of Land Use Planning

18.   *Toyama city's Public Transport Planning and Development toward Resilience- Case of Toyama – by Masashi Mori, Mayor, Toyama City Government, Japan*

Toyoma City faces a range of issues related to dwindling population and aging, as well as automotive dependence and aging infrastructure. As a result, Toyoma also faced a fiscal challenge that put city services at risk. Therefore, the city took the course of a centralized compact city centering on public transportation by revitalizing public transport. The city has designed a "Dumping and Skewer" urban structure that allows small areas to work as capitals, with links that allow transportation between each. The city is promoting relocation of residents to public transport lines. (1) The city will create a 25 km LRT network, focused on linking multiple inner-lines as well as inter-city transport. The city has seen weekday passengers doubling, and weekend passengers tripling, and on weekdays, elderly and female ridership has increased dramatically. (2) Encourage residents to relocate near public transportation lines through subsidies to citizens who build or rent houses near public transportation. (3)Revitalize the city center. In 2016, 37% of the population is living in residence encouragement zones, whereas in 2005 it 9% more than in 2005. As an urban management team, it is key to continually collect data to observe how policies are making impacts. Compact cities also allow for more comprehensive services. The city has developed a comprehensive care center in the downtown area that serves a very diverse population. Land prices have also increased for 4 years. The speaker then introduced a "positive spiral" that demonstrated the impact of LRT and compact development on creation of a resilient city.

19.   *Tools for Resilience-Checking/Proofing from Planners' Prospective -Including Examples of Land Use Planning and other powerful tools – by Daniel Ernesto Moser, Sustainable Urban Mobility Consultant, GIZ Germany*

More than 10 billion trips per day are urban, and this is driving a dramatic change in fuel consumption and GHG emission. Transportation becomes critical after disasters. Congestion is one problem. If people can't get to work on time or children can't get to school on time, this is stress on the economy. However, after disasters, transportation is essential to ensure that people can get away from disasters and make rebound possible. Resilience-proofing needs to be integrated into planning so that when large disaster events occur, the system can still respond. One key means is to manage travel demand. Demand is actually possible to change, even though we usually think about transportation from the supply side. TDM recognizes that travel demand is a function of transportation policy, pricing and investments (supply) that lead to choices (demand). The Transformative Urban Mobility Initiative seeks to support communities to help leaders transform. The initiative is helping communities to undertake innovation as well as to leverage finance. Proper financing methods need to be in place when it is needed. Income at city level is small, so provincial, national and perhaps international finance is required. A solution suggested is that polluters need to pay more. There are local market-based initiatives including parking control, congestion charging. Vehicle quotas are also useful tools as well as market-based pricing for registration.

20.   *Resilience Planning in Selected Cities Taking Part in the Project Global Initiative on Disaster Risk Management - More Resilient Cities Through Effective Land Use Planning and Understanding and Estimating Risks of Natural Disaster and Climate Change Impacts – by Antonio Balang Jr., GIZ Thailand*

Risk-Informed Decisions for Planning and Investment – a Suitability Model. "If a plan is not risk-informed, it cannot lead to sustainable development. The speaker presented three questions: Does your development plan take hazards and vulnerabilities into account? Is your method considering climate change projections? Yet are you unaware of the economic risks a disaster can put on your community? What does high risk mean? In the end, there is no information about expected damages or monetary losses from risks, and it is extremely difficult to assign financial liability. The presenter recommends the use of a suitability model seeing to allow for calculation of liability and costs of risks, allowing for strategic decision-making. The findings of a suitability

map may reveal that the value of damage is much higher due to planning errors, for example, planning high-value development in a high cost-risk place.

IX. Module 5: Strengthen Resilience through Improved Road Safety

21.   *Road safety situation in Asian countries and cities in the context of Regional Road Safety Goals and Targets for Asia and the Pacific by Thanattaporn Rasamit, Economic Affairs Officer, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)*

Number of crashes on the road we have travelled makes it one of the most dangerous in the world. In the Asia-Pacific region, one person is killed on the road every 40 seconds, which equates to more than 2,000 lives a day. While this is someone's life, there is also a significant socio-economic impact. Families may lose their source of income, families lose homes, jobs, and even if there is not a fatality there are still repercussions. Since 2006, the Ministerial Declaration on Improving Road Safety in the Asia-Pacific Region. The United Nations then declared the decade from 2011 the decade of road safety. In 2015, the Sustainable Development Goals mention Road Safety in two separate targets (3.6 and 11.2). The regional mandate is only up until 2015, however the global mandate is until 2020. The ESCAP Ministerial Conference on Transport in Moscow, December 2016 updated Regional Road Safety Goals to 2020. Road traffic injuries are leading cause of death and disability in the Asia-Pacific region. Over 733,000 deaths in 2013 (approx. 59% of global road deaths). The economic cost of road fatalities is equal to 1-3% of GDP. The average ESCAP road traffic fatality rate is 18.99 per 100,000 population annually. The goal is to achieve a 50% reduction in road traffic fatalities from 2010 to 2020. Current projections based on progress over the last years shows this is not likely to be achieved.

22.   The majority of the world's population live in cities as of 2009. With growing populations in urban areas in developing countries, cities are facing rapid increases in motorization, dense populations, road users competing for space, and traffic mix. Frequent and close interaction between vulnerable and motorized road users. Additionally, urban road safety to a large degree an issue of vulnerable road users. Motorcyclists, pedestrians and cyclists are more vulnerable in the region, and account for more than 55% of total road deaths. The proportion of road traffic deaths in South-East Asia is largely vulnerable road users.

23.   There is a requirement to increase urban mobility without compromising safety. As the vulnerable road users are at greater risk and greater burden of injury due to variety and intensity of traffic mix and lack of separation of other road users. Vulnerable road users, especially pedestrian and cyclists, are often those from the poorest communities. This issue is worsened as pedestrians are often neglected from the planning of urban road networks (as they are designed for motor vehicles only).

24.   Target actions for improving road traffic safety:
- Improve infrastructure safety design and safe environments for vulnerable road users.
- Improve enforcement and change behaviour of road users to avoid dangerous traffic offences e.g. Helmets, speeding.
- Awareness building.

25.   Problems in city areas:
- Separation of non-motor slow moving to motorized fast moving vehicles.
- Footpaths not available or low quality.
- Lack of road shoulders.
- Lack of median strips.
- Few safe crossing points or long distances between safe crossing points.
- No bicycle lanes.
- Not enough light (night time).

26.   Additionally, poor road user behaviour is one of the major cause of accidents. Road Safety requires a variety of measures. In addition to engineering, enforcement etc. it is also important to consider behavioural and cognitive psychological theory, which indicates that people modify behaviours as a result of new information, experience, perceptions and also through receiving either rewards or punishments.

27.   In order to achieve the overall objective of reducing road fatalities by 50%, the Updated Regional Road Safety Goals and Targets are:

    Goal 1: Making road safety a policy priority.

    Goal 2: Making roads safer for vulnerable road users including children, elderly, pedestrians, non-motorized vehicle users, motorcyclists and persons with disabilities:
- Modify behaviour (education and enforcement).
- Maximise helmet quality.

    Goal 3: Making roads safer and reducing severity of road crashes:
- Integrate road safety audit into all stages of road development.
- Increase separate/secure road space for pedestrians and cyclists in urban and suburban areas.

    Goal 4: Making vehicles safer and encouraging responsible vehicle advertising:
- Make regular inspection of vehicles mandatory.
- Ensure safety for new vehicles.

    Goal 5: Improve national and regional road safety systems:
- Ratification of UN Instruments policy on road safety.
- Provide road safety and stage of road network planning.
- Allow alcohol tests for prosecution.
- Make it general practice to keep motorcycle lights on at all times.

    Goal 6: Improving cooperation and fostering partnerships:
- Encourage and recognise initiatives sponsored by the private sector.
- Create new and deepen existing partnerships with non-governmental organisations.

    Goal 7: Developing the Asian highway network as a model of road safety:
- Reduce number of crashes on Asian highway.

    Goal 8: Provide effective education and awareness:
- Carry out targeted awareness campaigns and training programs.
- Introduce policies to reduce work-related traffic crashes and fatalities.

28.   Important considerations:
- Wearing good quality helmet can reduce risk of death by 40% and the risk from severe injury by over 70%.
- A 5% in average speed can reduce number of fatal crashes by as much as 30%.
- Above blood alcohol concentration of 0.05g/dl the risk of road traffic crash increases dramatically.

Discussion

29.   *Changmai Municipality:* Have a safety zone within the city. The municipality works with traffic police officers to increase enforcement within city areas, in conjunction with CCTV for enforcing speeding. Despite this, there are still some problems with road safety. The two main issues are public awareness and drivers under the influence of alcohol, especially at night time. How can these issues be addressed?

30.   *Jambi City, Indonesia:* Also facing the challenge of awareness raising and changing behaviours. As a child there was only one or two television channels, therefore awareness raising was done easier through these means. Today however, there are many channels, and it is much harder to reach everyone through the media. How do we effectively implement awareness campaigns to change behaviour? Changing behaviour takes a lot of time and expenses, how can we address this better?

31. *In response, Thanattaporn Rasamit*: Awareness raising and changing behaviour: It is important to understand that people's behaviour will not change suddenly after one campaign. Typically awareness campaigns are scattered; they start, they stop, then another starts. The impact of campaigns is much better when there is a continuous public awareness campaign that continually informs people. Social Media is a much lower cost than television channels. Additionally, cities can work with companies that have CSR intentions, or NGOs to run long-term campaigns at lower costs.

32. Drink driving: Enforcement is the key for this issue. It is important to be careful about how enforcement is carried out as sometimes strict governance can prevent citizens from going out and enjoying themselves. There are some great examples where cities facilitate those under the influence of alcohol to get home. An example of this is Kathmandu, where taxi drivers are arranged to be at the bar ready to take party-goers home at the end of the night. People need to know it is not okay to drive under the influence, and additionally, people need options to get home without driving.

33. *Lalitpur Metropolitan City, Nepal:* Drink driving is enforced very effectively and motor accidents have come down a lot. An example of this is when people attend celebrations, rather than taking a motorcycle they take a large van which can carry on average ten people, and then they go home in these vehicles. Nepal saw a reduction in road fatalities when motorcycle helmets were mandatory, and then when these policies were removed and people began travelling without helmets, road fatalities somewhat increased again.

34. *Baguio, the Philippines*: In the Philippines there is no speed limit on motorcycles, and they should be regulated especially on secondary roads where the users of motorcycles keep on riding without any consideration of the speed.

35. *Ulaanbaatar, Mongolia:* Mongolia is challenged with a very harsh climate, where winter temperatures reach as low as -30 to -40 degrees at night. Snow on the road becomes ice, and while in developed countries they use road heating, in Mongolia this is not possible.

36. *Thimphu, Bhutan:* Installed ten zebra crossings on largest main street two years ago, where beforehand people were crossing at random locations. With one policemen manned at each zebra crossing, this has been very effective in reducing accidents and now these zebra crossing are in high demand elsewhere.

X. Module 6: Green Freight and Eco-driving for Resilience and Sustainable Cities

37. *Green Freight and Logistic for Resilience and Sustainable Cities – by Robert Earley, Independent Consultant, P.R. China*
Globalization is resulting in decentralized production, while urbanization creates complex cities that have total dependency on outside energy, food and materials requiring logistics in order to ensure the city can continue to operate. Yet, urban logistics is a relatively unexplored policy and business area. There are many ideas being discussed about urban logistics, but few have been tried. There are many different stakeholders involved beyond just city governments. Urban logistics is often invisible to decision-makers and citizens who do not witness goods delivered by trucks in the middle of the night while they sleep. Additionally, often business-owners are resistant to change, even if change will improve their business model. Environmentally, logistics has a large impact on air pollution, while diesel trucks are just 5% of P.R. China's vehicle fleet, but they emit 61% of all particulate matter (79% with buses included). Green freight and logistics reduce the environmental, climate and public health impacts through reduced air pollution, improves social conditions, including road safety and reducing congestion, and enhance economic development and the competitiveness of the freight industry. The process of achieving green freight begins with a vision; talking with stakeholders to define an optimal desired future. Following this, a city must assess the current scenario and ask what can be done from here? It is then appropriate to identify and implement green freight measures. Almada in Portugal provide a good example of small zero emission vehicles which can travel through the city quietly from a nearby centralized hub where goods are delivered in order to allow the city to achieve its walkable city plans. Without

considering urban logistics in its urban planning, the city's objective to great a car-free district would have been severely disrupted by delivery vehicles. When freight is considered in urban planning, then freight is given a role in the urban discussion, a picture of freight and urban logistics is clear to all stakeholders, each stakeholder can be heard and challenges can be avoided in this uncertain and new field, and as a result logistics contribute to less local pollution, less contribution to climate change, less traffic and better access to services.

38. *Eco-driving for Resilience and Sustainable Cities– by Chiaki Takahashi, Global Project Producer, ASUA, Japan*
Process of Development of Eco-Drive:
   a) Collected fuel efficiency data by utilizing a Driving Management Sheet in handwriting by drivers.
   b) Gave feedback about fuel efficiency data to drivers through a small meeting.
   c) Eco-Drive has been shown to produce a 8.7% of improved fuel consumption and reduce traffic accidents by 49%.

39. Methodology of Eco-Drive:
   a) Accelerate gently
   b) Maintain a steady speed and keep a safe distance to the car in front.
   c) Slow down by releasing the accelerator.
   d) Make appropriate use of air conditioner.
   e) Do not idle the engine while standing still.
   f) Plan your trip to avoid congested route.
   g) Check the tire pressure regularly.
   h) Avoid unnecessary loads to reduce weight.
   i) Respect parking rules and regulations.
   j) Monitor the fuel efficiency.

40. *Case of Kitakyushu City– by Yosuke Mitoma, Assistant Manager, Environment Bureau, Kitakyushu City, Japan*

Kitakyushu's historic industries were polluting in the 1950s and 1960s, and it was recognized that this needed to be addressed through partnerships between residents, government and industry. The partnership with Asian nations for mutual prosperity was introduced, with Kitakyushu as an Environmental Model City and Environmental Future City. Transport sector policy includes Eco-Drive Kitakyushu Project. Major activities in the Transport Sector included "*No car days*" A set day where people who usually drive to work instead take public transport; Spread of second-generation vehicles such as fuel cell and electric vehicles, through subsidies and charging facilities; and an Eco-Drive Project. The Eco-Drive project created a promotional model over five years from 2007 to 2011, helping to solve company issues such as in-house education systems and quantifying effects of improved driving. A fuel efficiency management site, activities such as organizational seminars and award systems were organized, and achievements were tracked and recorded.

41. A discussion after the presentations focused on integrating logistics into urban management plans, moderated by Robert Earley. First, it cities were asked to indicate if they had an urban freight policy or not. Only about half the cities noted that they had urban freight plans. Lalitpur, Nepal noted that trucks are not allowed to access the city during certain times. Trucks come late at night and leave by the morning. This works very well in Kathmandu also. Ulaanbaatar, Mongolia said that trucks are allowed to access downtown in the middle of the night. Logistics trucks drop of goods at centralised centres outside of the city centre and then middle-sized vans take the goods into the city. Chengdu, P.R. China noted that it is currently making local regulation to ban heavy-duty fuelled trucks to enter the city. Vientiane, Laos does not allow trucks to enter the city centre. One speaker questioned whether banning trucks during the day was really an urban logistics plan. When asked, the cities that did not have urban freight plans noted that the reasons include that urban transportation focuses on moving people rather than goods, that there is a need for more technical capability and data analysis, and that there may be a need for potential ICT and smart city technology to improve logistics. The session was concluded by the moderator, stating that the topic of urban logistics is only beginning in Asia, and even

globally. There is a need for solutions that work in the modern global economy. The concept of just-in-time deliveries is key for cities to participate in global economies.

XI. Module 7: Designing and Implementing Sustainable Transport Infrastructure and Services in Developing Nations

42.   *Transport & the global agendas (Speaker: Nikola Medimorec, SLoCaT Consultant)*

The 2030 Agenda and the New Urban Agenda have the highest level of co-benefits of all of the current global agendas. Transport contributes to 8 SDGs and several targets. In 2017, 98% of the 43 submitted Voluntary National Reviews (VNR) have some degree of reference to the transport sector. 35% of VNRs in 2017 gave specific examples to link transport with sustainable development impacts. Adaptation in transport was only mentioned once, by Kenya in the 2017 VNRs. Additionally, 75% of the NDCs highlight transport as a mitigation source, but only 5% as adaptation. Cities are at the forefront of climate action. Current planned actions are not enough to meet the 2 degree targets set by countries at the Paris Agreement. In order to achieve these targets it is critical that mitigation and adaptation have to be tackled together.

43.   *How are projects prepared? (Speakers: Phil Sayeg SLoCaT and Chanin Manopiniwes)*

Transport needs to do it's share for the Paris Climate Agreement. Reduction in carbon intensity of transport network comes from a combination of efficient vehicles, low carbon fuels, shifting modes and avoiding transport altogether (IEA 2012, Energy Technology Perspectives 2012, OECD). Large investment are required for infrastructure, and the problem is often perceived to be that there is not enough finance. However, in the finance sector, there is money looking for opportunity – and there are not enough projects. There is an opportunity to successfully address transport while also providing access to social services for citizens, and the resulting climate benefits will follow. The value of travel time savings, operating cost savings, improved road safety and other associated economic and social benefits are 10-20 times greater than the reduced greenhouse gas emissions in monetary terms.

44.   Given this opportunity, there is need for a strategic framework: Including a goal, higher level objectives to which the project contributes, and key indicators. There are a number of components enacted by various parties which conjoin to achieve a successful project proposal.
- Initially, Project Identification is a collaborative responsibility, done by cities and including multilateral development bank (MDB).
- Preparation follows and is the responsibility of the Government.
- Appraisal is the responsibility of the MDB.
- Negotiations are a joint responsibility.
- Implementation is undertaken by the Government.
  - The Evaluation comes once the project is completed and is undertaken by the MDB, ideally in collaboration with the government.

45.   Strategies/Plans/Projects should be market-orientated:
- Facilitating appropriate responses from firms and individuals.
- What government and development institutions do may only be the minor part of what needs to be done.
- Besides government agencies are often slow moving and part of the problem.
- Local government may need to be strengthened as a primary method of delivery of these projects.

46.   *Why is concept important? (Speakers: Phil Sayeg, SLoCaT and Chanin Manopiniwes)*

Participant discussion from exercise:

Chengdu, P.R. China discussed collection of information about BRT projects. Because the corridor is outside of the city centre it is hard to collect data. Important to consider number of riders per day to approximate demand. Also, identifying a project must consider what benefits (both social and economic) the project will deliver to citizens. Colombo, Sri Lanka noted that there needs to be an issue which needs addressing. Building on this, considerations include who are the beneficiaries of the project and how much should be spent. Sylhet City Corporation, Bangladesh responded that for a project such as Bangladesh's MGSP (Municipal Governance Service Project), the social impact of the project is considered. Before starting the project, it is important to understand who will benefit from the project. Different sectors and members of the community give their perception of how it will benefit them. Then it is determined which project should be implemented first. It is asked, which portion of the city has been neglected more, and can this area become an area for focus and data collection prior to implementing the project. Ulaanbaatar, Mongolia contributed the questions: Who will be effected? Citizens of the city- not only the passengers, but also the road users and taxi drivers. In addition to these actors, the city municipality (who are the decision makers), and the national government. What are the needs of the city? Living in a safe city, having good road and traffic conditions, having good infrastructure. What are the possible benefits? Having good public transport, saving time, saving money, less carbon emissions.

47. *Closer look at project preparation (Speakers: Phil Sayeg and Chanin Manopiniwes)*
    a) Project decision
    b) Based on needs, generate options, define base case, define project case, demand analysis – effect on project design and project viability, economic/other analysis – priority, risk identification, optimization – scaling project to level of benefit.
    c) Financing decision
    d) Risk allocation – management of risk, Affordability – are funds available from relevant sources (public/private) to meet costs, Value for Money assessment, Procurement strategy e.g. PPP & Modality.
    e) Implementation decision
    f) Monitoring and review

48. Uncertainty means that estimates about price should not be expected to turn out exactly as predicted. Projects can be at risk of 'Optimism bias' where initial proposals underestimate the price and then when it comes to actual design and implementation this budget is exceeded.

49. *Participant responses for Question 1:*
    Set a clear objective; Track record and qualifications; Financing and budget; Incorporation of best practice; Resource management; Cultural appreciation and rules; Collaboration with others (Other companies, Universities); Time schedule/Project implementation plan; Method of payment.

50. *Participant responses for Question 2: How could the environmental outcomes be enhanced?*
    Discourage the use of polluting vehicles; Ban inefficient vehicles – but give notice; Tax concession for uptake of new low-emission vehicles; Promote non-motorized transport.

51. *Participant responses for Question 3: What should be considered in projects that cross municipal boundaries?*
    Work with ministry/higher authority; Mutual discussion with other municipalities; If separate ministries, have inter-ministerial meetings; Use a city of central government; Set up a new authority like a metropolitan authority.

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XII. Module 7: Designing and Implementing Sustainable Transport Infrastructure and Services in Developing Nations…continued

52. *Demand and economic benefits (Speaker: David Bray, SLoCaT Consultant)*
Need to consider demand within a context that takes account of: Current and forecast demography and land use, transport policy settings, transport strategy, inter-related projects and base case. Transport is a derived demand, in other words it is done because people need to do something else such as get to work, school, meet friends or see a doctor. Demand is influenced by price.

53. Key issues:
    - Demand is influenced by a range of issues.
    - A proposed project or policy initiative will influence demand – other than, perhaps, very small initiatives.
    - Ignoring changes in travel demand will result in incorrect estimate of the economic benefits.
    - It is more complex to estimate benefits with variable travel demand.

54. *Participant responses to 'Does the government have a strong influence over the use of public transport?'*
Participants had mixed responses. Some cities believe they have an influence over public transport as a result of their provision of cheap, well designed public transport systems which have strong environmental and social benefits. Some other cities shared that despite adequate planning and implementation, and even in cases where public transport demand was high, the government does not fundamentally control commuter behaviour.

55. *Participant responses to 'Are there ways in which their influence can be strengthened?'*
    - Increase the supply of the services provided – ensuring individual residents do not need to rely on cars.
    - The Government can increase the safety of public transport services to increase attractiveness.
    - Provide subsidies for the use of public transport.
    - Linking different cities together with public transport.
    - Integration of land use and transport to ensure that people do not need to travel long distance to access services.
    - Split charging systems, which for example charge students and elderly less.
    - Providing free trips for a certain period to allow for commuters to experience using the public transport.
    - Like the example provided from Bhutan, removing tax from imported buses while charging high amounts of tax on imported private vehicles (55% in Bhutan).

56. *Moderator David Bray comments on questions:* Governments do not have much influence over public transport usage. There are four categories of interventions that can be implemented by government:
    - Government can increase supply (increase capacity of public transport services),
    - Government can use instruments that can sway people to use it (such as advertising campaigns),
    - Government can put pressure on people (through campaigns such as car free days, or by imposing high taxes on private vehicles),
    - And ultimately, Governments can use regulations and policy.

57. However, in the case of public transport, Government cannot impose regulations and policy that 'forces' people to do one thing or another, and for this reason there is limited influence on public transport use.

58. Land use: If Government is not prepared to change zoning laws around stations then don't build the metro. Transport projects are major engineering operations, given out to engineers. It is important to ensure there is someone above the engineers that ensure that solutions are integrated with municipality etc. and ensure the engineers are not compromising the outcomes desired for the projects.

59. Economic Benefits: The assumptions taken in the base case have a large impact on the economic evaluation of a project. Important to ask what assumptions were made in the base case. Commonly included benefits include reduced travel time, improved reliability, reduced vehicle operating costs, reduced road accidents. Sometimes included benefits include greenhouse gas emissions and local pollution, wider economic impacts, land value.

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Rarely included in benefits include land use diversification, amenity benefits and social benefits such as disadvantaged people who are now able to access work.

60. *Risk allocation & private sector participation (Speaker: David Bray, SLoCaT Consultant)*

Risk can result in higher costs, lower benefits and more troublesome implementation. Risk management involves identifying risks, followed by actions to monitor and control their likelihood and their impact. Effort needs to be proportional to level of risk and potential consequence. One way to reduce risk is through by Public Private Partnerships (PPP). By transferring the risk of construction and supply of equipment and services to the private sector, the risk can be transferred to the private sector and the private sector also manages the risk. "Transfer risk to the private sector that they can manage", rather than just as much as possible, while the residual risk remains with Government. In relation to financing, money is often cheaper for Government to borrow than the private sector. However, if the private sector can do the work at a cheaper price that offsets the capital cost, a better outcome can be produced.

61. Discussion: Participants thought the operator of the BRT line should supply the buses because it is easy for one single entity to supply all of the services. The moderator commented that in the case of a metro, the synergy between the trains and the track is quite close. In the case of buses however, it is less clear. If you have high quality management, it could be possible to lend government owned buses to the private sector. If management is less effective, then it may be more effective to shift the responsibility of the buses to the private sector.

62. Three things to take away from the training:
- Cities are in charge.
- Cities can get the most out of their development partners by doing their sector planning and project identification well.
- Design your projects around identified needs of people etc.

XIII. Module 8: Interactive Session - Planning for the Future of your City: Strengthen planning and institutional capacity for city resilience

63. *Interactive Session- Planning for the Future of your City by (Introduction: Manfred Breithaupt, GIZ Consultant)*

The final session began with a briefing before the participants were asked to consider the following questions for a specific city that helped urban officials to consider the number of institutions they need to deal with for urban transport in their cities how to plan for the creation of an urban metropolitan transport authority with technical and financial means, development of an urban mobility plan and methods for developing it either internally or with the help of a consultant, and constraints to implementation. Participants also discussed how to improve public transportation, make pedestrian pathways safe and attractive, financial plans for dedicated cycling infrastructure, integrated public transport modes, and the ease and safety of walking and cycling in cities.

XIV. Closing Session

64. Mr. Mohanty closed the session by thanking the sponsors and the main organizers of the event. Certificates of participation were distributed to the participants, and the workshop was successfully concluded.

XV. Technical Field Trip cum Reception

65. A technical field trip was made to visit the inland water system in the Chao Phraya River. The trip was hosted by ASUA, Japan.