

Chair's Summary

Ninth Regional Environmentally Sustainable Transport (EST) Forum in Asia

(Intergovernmental Ninth Regional EST Forum in Asia: EST for Resiliency – Building Safe, Smart, Low-carbon and Resilient Cities in Asia)

17-20 November 2015

Venue: Hyatt Regency, Kathmandu, Nepal

I. Introduction

1. With the theme of “*EST for Resiliency – Building Safe, Smart, Low Carbon and Resilient Cities in Asia*”, the Intergovernmental Ninth Regional Environmentally Sustainable Transport (EST) Forum in Asia was hosted by the Ministry of Physical Infrastructure and Transport (MOPIT) of the Government of Nepal, and was co-organized by the Ministry of the Environment of the Government of Japan (MOE-Japan), the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), and the United Nations Centre for Regional Development (UNCRD), in Kathmandu, Nepal, from 17 to 20 November 2015. The Forum was officially inaugurated by Rt. Honourable Prime Minister of the Federal Democratic Republic of Nepal Mr. K.P. Sharma Oli, and chaired by Hon. Mr. Bijaya Kumar Gachhadar, Deputy Prime Minister and Minister of Physical Infrastructure and Transport of the Government of Nepal.

2. The Forum was attended by over three hundred fifty participants comprising government representatives from twenty-six countries (Afghanistan, Azerbaijan, Bangladesh, Bhutan, Cambodia, Fiji, India, Islamic Republic of Iran, Indonesia, Japan, Kyrgyzstan, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Republic of Korea (hereinafter, Korea), Samoa, Sri Lanka, Tajikistan, Thailand, Timor-Leste, and Viet Nam), subsidiary Expert Group members of the Regional EST Forum in Asia, international resource persons, representatives from various United Nations and international organizations, multilateral development banks, scientific and research organizations, nongovernmental organizations (NGOs), local observers and professionals from the transport sector in Nepal.

3. In support of the Regional EST Forum in Asia, two special events were co-organized in conjunction – (a) Regional Seminar on Safe, Climate Adaptive and Disaster Resilient Transport for Sustainable Development, 17 November 2015 and (b) Regional Dialogue on Transport and Climate Change, 18 November 2015. The Forum was supported by a number of national and international organizations and donor agencies, including the Konrad Adenauer Stiftung, Partnership on Sustainable, Low Carbon Transport (SLoCaT), German International Cooperation (GIZ), EMBARQ, International Centre for Integrated Mountain Development (ICIMOD), International Recovery Platform (IRP), and Institute for Transportation and Development Policy (ITDP), SAFER-Vehicle and Traffic Safety Centre, University of Gothenburg and YCNC-Nepal.

4. Asia is one of the fastest urbanizing regions in the world. More than two third of the world's megacities are in Asia with the urban population continuing to grow rapidly. Rapid motorization and poorly planned land use developments in many parts of the region is changing the socio-economic and

environmental situation. Asia and the Pacific is one of the most prone regions to natural disasters and climate change impact. According to UN estimates, 5,139 natural disasters occurred between 1970 and 2014 in Asia, which is about 43% of the total disasters experienced globally. While many of the Asian developing countries and cities are highly vulnerable to natural disasters and climate change impacts, the majority of the developing countries and cities in the region have not made disaster and climate resilience an integral part of their transport policy and planning as well as development transport infrastructure and services. Asian countries and cities bear unprecedented damage to both human life and economy during natural disasters and extreme climate events. Furthermore, the steady increase in traffic accidents and fatalities across most part of the region poses another question to resolve – whether our cities are safe, smart, resilient and sustainable?

5. Sustainable transportation is not only the lifeline of any city and country, but also the engine of economic growth and social development. It plays an important role not only in production and distribution of goods and services but also has significant impact in social, economic, and environmental dimensions of sustainable development. Limited accessibility and transport facilities in rural areas of Asia as well as lack of required rural-urban connectivity reduce the resilience of rural and farming communities. An inclusive, safe, efficient, people-centered and environment-friendly transport system not only fosters quality of life, but also drives economic growth, human productivity and national development by allowing efficient human interaction and exchange of knowledge, innovations, technologies, products and services.

6. The Sendai Framework for Disaster Risk Reduction 2015-2030, which was adopted at the Third World Conference on Disaster Risk Reduction in Sendai, Japan, on 18 March 2015, called for greater public and private investments in disaster risk prevention and reduction through structural and non-structural measures to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets as well as the environment. To this regard, an efficient and smart transportation system can ensure faster rescue and evacuation, more efficient recovery efforts and relief operations. Environmentally sustainable transport systems help to scale up the capacity of countries and cities for emergency response and manage urban mobility more efficiently and effectively during and after the disaster. Building resilient transport infrastructure and services, they can significantly reduce economic losses associated with currently less sustainable transport in the long run, and at the same time, the cities and communities will be better equipped to cope up with disaster events and climate impacts.

7. In the Third International Conference on Financing for Development held in Addis Ababa, Ethiopia, from 13 to 16 July 2015, member countries agreed that “current policy, finance and investment pattern are not delivering the future we want” therefore it is important to “strengthening official finance, unlocking the transformative potential of people and the private sector while ensuring the investment pattern support sustainable development, and by strengthening national and international policy environments.” Recognizing the importance of the resilient cities and transport infrastructure, the conference further called for – a new initiative to ensure sufficient investment in sustainable and resilient infrastructure, including transport, communication, water and sanitation and energy, in all countries.” and urged the international community “to increase its support to projects that foster regional integration, regional and multilateral development banks, in collaboration with other stakeholders, to address gaps in trade and transport related regional infrastructure”.

8. Meeting at the UN Sustainable Development Summit from 25 to 27 September 2015 at UN headquarters in New York, the member states of the UN formally adopted an ambitious post-2015 development agenda – “Transforming our world: the 2030 Agenda for Sustainable Development”, which includes 17 global Sustainable Development Goals (SDGs) and associated targets. Target 11.2,

under Goal 11 specifically calls for inclusive, safe, resilient and sustainable cities and human settlements through “provision of access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons by 2030”.

9. The international community is further expected to achieve a legally binding and universal agreement on reduction of greenhouse gas emissions to limit the average global temperature increase to 2°C above pre-industrial levels in the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, COP21, to be held in Paris, from 30 November to 11 December 2015. Several of the countries that have submitted their Intended Nationally Determined Contributions (INDC) have included transport related actions both on mitigation of and adaptation to climate change as part of their proposed actions on climate change. The resulting agreement in Paris is expected to include a substantive section on adaptation on climate change.

10. Taking into account these international developments and processes as well as growing threats from climate change and increasing frequency and magnitude of natural disasters, the Nepal EST Forum provided an opportune time to generate an Asia-wide regional consensus on how Asia’s transportation sector can better integrate resilience in transport policy, planning, budgeting, as well as infrastructure development. This consensus also includes how the Asian countries can build their cities and towns in a manner that is more safe, resilient, liveable and sustainable. This through strengthening policy formulation and planning to improve urban and rural access and at the same time better cope with disaster risks and extreme climate events, and thereby increase their investments to progressively build disaster and climate resilient infrastructures and services.

11. As an integral part of the 9th Regional EST Forum in Asia, a technical field visit was conducted for participants to gain insight on the land use and existing transportation system in Kathmandu, and the extent of damage caused by the April 2015 earthquakes. The participants witnessed the damages resulting from the earthquakes in a number of historical areas such as Basantapur Durbar Square, Kathmandu, which is the traditional heart of the old town and Kathmandu’s most spectacular legacy in terms of traditional architecture. The technical field visit provided an opportunity to participants to assess the degree of resilience of the city of Kathmandu in the face of growing threats from natural disasters and climatic events.

II. Regional Seminar on Safe, Climate Adaptive and Disaster Resilient Transport for Sustainable Development

12. The Regional Seminar on Safe, Climate Adaptive and Disaster Resilient Transport for Sustainable Development was organized by UNESCAP and UNCRD on 17 and 18 November 2015 in Kathmandu, Nepal in conjunction with the 9th Regional EST Forum in Asia.¹

13. *Transport and post-2015 development agenda:* The Regional Seminar took note of the 17 SDGs and 169 targets adopted by the United Nations General Assembly in September 2015. The SDG framework includes five targets linked to goals 3, 7, 9, 11 and 12 that are directly related to transport. The Regional Seminar stressed the need for the countries and transport communities to work towards

¹ Representatives of the following UNESCAP member countries were in attendance: Afghanistan; Azerbaijan; Bangladesh; Bhutan; Cambodia; Fiji; India; Indonesia; Islamic Republic of Iran; Japan; Kyrgyzstan; Lao People’s Democratic Republic; Malaysia; Maldives; Mongolia; Myanmar; Nepal; Pakistan; the Philippines; the Republic of Korea; Samoa; Sri Lanka; Tajikistan; Thailand; Timor-Leste; and Viet Nam. Representatives of international organizations, academia, IGOs and NGOs were also in attendance.

achieving these transport related goals and targets by implementing focused sustainable transport policies, strategies and action plans.

14. *Transport Safety:* Globally it is estimated that 1.25 million people were killed in road crashes in 2013, of which 733,000 deaths (59%) occurred in the Asia Pacific roads. Road traffic is the leading cause of death for the age group of 15-29 years old, which is one of the most energetic and active age group. The majority of fatalities in this region are from vulnerable road users, which account for 55%. The Decade of Action for Road Safety² calls to stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing activities at the national, regional and global levels by 2020. The Global Plan for the Decade of Action for Road Safety 2011-2022 includes five pillars of road safety interventions: road safety management; safer road; safer vehicles; safer road users; and post-crash response.

15. The Regional Seminar took note of the road safety activities of the Global Road Safety Partnership (GRSP) in the region that focused on behavioral change of the road users. It was highlighted that there are implementation gaps in the area of safe systems approach, data and analysis, legislation and policies, enforcement of rules, public education, safety standards and post-crash care that contribute to road crash problems. There is plenty of opportunity to work in these areas through multisectoral collaborations. The areas of action to improve road safety were: strong political commitment; laws and legislation; enforcement campaigns & penalties; public education, capacity building and social marketing; and proven and evidence based interventions.

16. The Regional Seminar noted that many countries were implementing national road and rail safety strategies, policies and action plans to improve road safety. Bangladesh, Cambodia, India, Nepal, the Republic of Korea, Thailand, and Viet Nam shared their experience in improving transport safety.

17. *Climate Adaptive and Disaster Resilient Transport:* Asia and the Pacific region has experienced frequent extreme climate events such as increase in number of hot days and heat waves, sea level rise, increases in storm surges and intensity, increase in intense precipitation events and increase in drought conditions and natural disasters, such as Nepal Earthquake, Thailand Flood, Japan Earthquake, and Super Typhoon Haiyan in the Philippines. In order to improve the resilience of transport systems countries need to identify critical system components at risk, monitor conditions and on-going impacts, prepare operation and maintenance strategy, and develop standard operating procedures to manage and mitigate the impacts, identify changes required in design processes and procedures, retrofit and relocate vulnerable infrastructure.

18. While impacts of climate change are global, their nature, extent and magnitude are localized. This requires locally planned and designed adaptation measures. The Sendai Framework for Disaster Risk Reduction adopted in March 2015 aims to substantially reduce global disaster mortality by 2030, aiming to lower per 100,000 global mortality rates in the 2020-2030 period compared with the 2005-2015 period. The four priority areas of the framework are: understanding disaster risk; strengthening disaster risk governance to manage disaster risk; investing in disaster risk reduction for resilience; enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

19. *Recommendations:* The following are major conclusions and recommendations of the Regional Seminar for developing safe, climate adaptive and disaster resilient transport systems:

² The United Nations General Assembly resolution, A/RES/64/255 of 10 May, 2010.

- a. Consider developing/refining and implementing a national transport safety policy covering all modes of transport. In the area of road safety, a focused and targeted programme to reduce fatality from road crashes and including targeting Vulnerable Road Users (VRUs) would contribute towards achieving road safety target included in SDGs.
- b. Identify critical transport infrastructure and initiate review of design standards, guidelines and specifications to consider potential impacts of climate change and natural disasters.
- c. Strengthen capacity of designers and engineers to collect and analyze data, plan and design safe and resilient transport infrastructure and encourage innovations.
- d. Explore use of electric vehicles and alternate energy such as hydroelectricity in order to enhance energy security and reduce dependency on fossil fuels.
- e. Encourage use of public transport and Non-Motorized Transport (NMT) modes and improve quality of public transport and NMT infrastructure, such as walkways and bicycle tracks, in order to reduce dependency on private transport modes.
- f. Build properly engineered rural roads and ensure their proper maintenance.
- g. Initiate country specific studies on impacts of climate change, adaptation measures, benefits of use of seat belts, geophysical hazards such as landslides in mountainous areas.
- h. Build and strengthen institutions, stakeholders & community to implement policies, strategies and action plans.

20. The Regional Seminar stressed the need of additional human and financial resources for developing countries to implement focused sustainable transport policies, strategies and action plans and declarations. In this context, the Regional Seminar requested international community and development partners to extend support to the developing countries.

III. Regional Dialogue on Transport and Climate Change

21. On November 18, the Partnership on Sustainable Low Carbon Transport (SLoCaT), on behalf of the Paris Process on Mobility and Climate (PPMC), led a regional dialogue on transport and climate change at the United Nations Centre for Regional Development (UNCRD) led Ninth Regional Environmentally Sustainable Transport (EST) Forum in Asia. Country-level participation included representatives from 26 countries, which was comprised of representatives from the EST member countries as well as from Central Asian and South Pacific countries.

22. Welcoming remarks were delivered by Mr. Gajendra Kumar Thakur, MoPIT Nepal, who stated that sharing international experiences in transport is essential and highlighted low carbon measures in Nepal (e.g. electric-three wheelers; large public buses, a proposed metro system, and a planned national railway). He stressed that Nepal must increase resilience of transport systems to floods and landslides. Mr. Peter Hefele, Konrad-Adenauer-Stiftung, stated that COP21 can create new alliances to emphasize transport's contribution to a low carbon economy and to give the Asia region a stronger voice on transport in global processes. He stressed that we must to adopt innovative models to further Asian cooperation on transport and climate change.

23. In the interactive session, two presentations framed key topics for transport and climate change. SLoCaT presented an overview of transport emissions trends in the EST region, an analysis of transport measures in Intended Nationally Determined Contributions (INDCs), and a description of SLoCaT analytical tools to support detailed implementation plans. The presentation showed that Business as Usual (BAU) transport emissions in the EST countries could increase 140% by 2030, but there is great potential for low carbon solutions and thereby lower CO₂ emissions. In addition, countries have not optimized mitigation potential within INDCs, and it is important to increase attention to adaptation, which lags behind mitigation. EST member questions focused on whether low-carbon transport measures will be sufficient to achieve a 1.5 to 2 degree scenario, and whether INDCs are sufficiently flexible to capture country-specific adaptation needs.

24. GIZ focused on climate change mitigation for transport in the ASEAN region. Several challenges were presented, which include policies supporting motorization over mobility and access, and limited mandates from MoTs for implementation over policy. Successes were also noted, including proposed fuel economy standards in ASEAN countries, car labeling in Vietnam and Thailand; CO₂-based taxation in Thailand, and e-bikes in Malaysia. The presentation concluded that international fora present key opportunities for policy sharing, and the need to draw upon transport measures considered in creating INDCs. EST member questions focused on how to increase coordination among ministries (noting successes in Vietnam), how to raise social status of efficient transport modes, and how to balance emissions and motorization needs (noting that low carbon transport, means more intelligent transport, not less transport). It was discussed that the rapid proliferation of two wheelers in Asia presents both challenges and opportunities, and mobility gains from scaling up e-bikes must be coupled with measures to ensure road safety for all users.

25. A facilitated discussion considered six key messages on transport and climate change that will be part of the PPMC “We Are Transport” campaign, to be launched next week in support of the PPMC advocacy towards COP21. Transport produces a quarter of global GHG emissions, and thus provides opportunities for a quarter of the solutions, which may be difficult to do if key delegates are not at the table.

26. *Is decarbonisation of the transport sector a realistic long-term option for Asia?* Low-carbon transport means halving emissions from transport sector by 2050. While some noted that we must be ambitious, it was noted that many countries might struggle to achieve this goal. Although many experts are focused on low-carbon transport, political leaders are beginning to consider this approach (noting successes in Korea and China). While cars are seen as prestigious in the Asia Pacific region, young people in Europe show growing focus on balance mobility options. Renewable energy can reduce transport emissions, and Bhutan supplies 100% hydropower. The vehicle industry and wealth management industry are revising business models, acknowledging that achieving a 2 degree scenario will require leaving fossil fuel resources in the ground. The message on decarbonisation would gain in strength if co-benefits were integrated in this message.

27. *Climate resilience (adaptation) in the transport sector in Asia is an immediate priority:* 80% of the world’s population lives on coastal plains or near waterways, and thus adapting transport networks to a new climate is a crucial issue, as mitigation alone will be insufficient. The knowledge base on adaptation is generally less developed than mitigation, and countries are also giving less attention to adaptation in INDCs. However, high-speed rail in Japan proved to be more resilient than conventional rail after its 2011 earthquake. Bangladesh has begun to include adaptation measures into cross-sectorial planning processes, and Maldives is incorporating climate-resilient design into coastal infrastructure. The construction and operation of transport infrastructure will determine its total

resilience, and low-volume rural roads require focused engineering practices and sufficient maintenance, due to their vulnerability to extreme weather.

28. *Transport is one of the most innovative and dynamic sectors in developing climate solutions:* The PPMC 80 Days Campaign highlights tangible strides toward low carbon transport solutions. Innovations are coming from both North and South, with BRT originating in Brazil and moving to the world, and creativity in the regional adoption of electric two-wheelers, buses, and zero-emission urban freight delivery. ICT innovations have led to proven reduction in transport emissions, and second-generation biofuels are providing important energy inputs. Regional groups, such as ASEAN, are sharing expertise to make freight more efficient and less costly. The UNFCCC provides funds for technology transfer through the CTCN (although the transport sector is not benefitting optimally), and initiatives such as the German Partnership for Sustainable Mobility are sharing innovative solutions in a number of countries.

29. *Sustainable, low carbon transport improves connectivity, accessibility and social equity:* Sustainable low carbon transport provides access to all without regard to social status, colour or creed. Increasing access also achieves co-benefits such as improving air quality; furthermore, connectivity and accessibility can address climate change by shifting travel behaviour. Low-carbon transport is not just for those countries that can afford it, and connectivity, accessibility and quality are needed to increase use of public transport in India. Extreme weather is an issue in up-scaling non-motorised transport, and Malaysia is connecting metro stations with neighbouring buildings to increase convenience. Affordability is also a critical element of accessibility, and safety is an essential component to achieve gender equality in countries such as India. Finally, it was noted that there is a need to provide transport access for all, at all times and in all seasons.

30. *The adoption of low-carbon sustainable transport requires new business models:* Financial solutions to low carbon pathways are available, and global transport infrastructure requires \$2.5 trillion over 10 years (not including urban transport). There is no shortage of money (as markets have \$50 trillion), but compelling propositions are needed to float bonds and create trust funds to complement government financing. Long-distance rail and waterway freight and urban transport will have highest returns, due to co-benefits. Climate finance is insufficient, as transport would get a maximum of \$8 billion per year from climate finance instruments based on a proportional share of emissions. While MDBs spend \$25 billion annually on transport, they cover only 3-4 percent of investment needs; thus, public and private sector finance are needed (e.g. Bangladesh has developed a climate resilience fund through coordinated sectorial efforts).

31. *Urgency: now is the time to take action on transport.* There was general consensus that now is the time to take bold action on transport. Urgency means government prioritization of low carbon transport investments, and there is much progress to achieve in this regard. The SDGs support adoption of sustainable transport options among UN ESCAP member states, and as INDCs will only take effect in 2020, pre-2020 action is also a necessary focus. We cannot wait until the next generation to take action, and Small Island Developing States (SIDS) are pushing for less talk and more action. Ambitious action on transport and climate change is feasible now, and tomorrow may be one day too late.

IV. Opening Session

32. Welcoming the participants of the 9th Regional EST Forum in Asia, Mr. Gajendra Kumar Thakur, Secretary for Nepalese Ministry of Physical Infrastructure and Transport (MOPIT), mentioned that transport issues are complex in a landlocked country like Nepal due to its difficult topography,

geology and harsh climatic conditions. While providing access to the rural areas of the country has been challenging, the challenges in urban areas are attributed to growing traffic congestion, lack of efficient mass transportation, vehicular emission, noise pollution and dust pollution remains to be main challenge. The prevailing practices of relatively conservative geometric standards and poor road planning are causing severe road safety concerns with increasing fatality and injury rates. The city of Kathmandu and other cities are growing rapidly and to cope with associated problems, efforts have been initiated. Through the Kathmandu Sustainable Urban Transport Project (KSUTP) and the Kathmandu Valley Road Improvement Project, improvements in the urban transport facilities have been initiated in the city such as road widening, public transportation, street lightings and installation of traffic signals. The Secretary expressed hope that sharing of knowledge, skill, best practices and networking among member countries of the Forum will bring about concrete recommendations towards achieving sustainable transport system and services.

33. In her opening statement, Ms. Chikako Takase, Director of the United Nations Centre for Regional Development (UNCRD), explained the background and the importance of having “resiliency” as the main theme of the Ninth Regional EST Forum in Asia, in particular since it was taking place in Nepal, which suffered from the large earthquakes in April 2015. She also noted that the timing of this Forum was opportune, with the adoption of Sendai Framework for Disaster Risk Reduction 2015-2030 at the Third World Conference on Disaster Risk Reduction in March this year and the recent adoption of Transforming our world: the 2030 Agenda for Sustainable Development at the United Nations Sustainable Development Summit 2015 two months ago in September 2015. This Forum is also taking place right before the important 21st session of the COP of the UNFCCC. She noted that the outcome of the Kathmandu EST Forum aims to address the role of EST in the context of natural disaster, food security, climate change, livability and sustainability, among others and she expressed her hope that the Forum will serve as guidance to participating countries in their future policies. Finally she expressed her expectation that the outcome will also make valuable contribution to global processes foreseen, such as the 21st COP of the UNFCCC later this month, the High-level Political Forum at the ECOSOC in July 2016 and the process that leads to HABITAT III to be held in October 2016.

34. On behalf of the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Mr. Peter O’Neill, Chief of Transport Policy and Development Section of Transport Division, recognized the fruitful cooperation between UNCRD and UN ESCAP in co-organizing the Regional Seminar, Regional Dialogue and the 9th Regional EST Forum in Asia together with the Government of Nepal as the host. Touching upon the outcome of the Regional Seminar that preceded the 9th EST Forum, he expressed an urgent need to address issues of road safety and the appalling toll of death and injuries in Asia. He mentioned the potential role of transport in addressing climate adaptability and disaster resilience. He emphasized the need for transformative transport planning to achieve better outcomes that could provide a major contribution to sustainable development and the 2030 UN global development agenda that includes the sustainable development goals (SDGs). These goals provide a great opportunity and catalyst for how good transport policies can support the objectives of 2030 sustainable development agenda. Increasing attention is needed for the issue of all-weather access and resilient connectivity for remote and rural communities. This important topic is now included in the Regional EST Forum for policy discussion, and is deserving of a continuing place within EST process, which could open up an opportunity to establish a knowledge network that shares knowledge on safer sustainable remote community access. UNESCAP’s Transport Division is committed to promoting a more safe and sustainable regional transport connectivity. He finally expressed hope that the deliberations of the EST Forum will produce a clear route for Asian countries

to follow up in achieving more efficient and effective transport infrastructure and systems towards a more liveable cities and better connected societies in Asia.

35. Expressing his deepest condolence for the loss of lives caused by the April 2015 earthquakes in Nepal, Mr. Teruyoshi Hayamizu, Councilor, Minister's Secretariat of the Ministry of the Environment of Japan, conveyed Japan's special sympathy and solidarity for the people of Nepal, including the commitment to provide every possible support. He recognized that the Regional EST Forum in Asia had been steadily gaining recognition since its launch in 2005 in Aichi, Japan, with the increasing number of participating countries, growing support of international organizations and completion of several national EST strategies under the overall framework of the Forum. He noted that both the population and motorization had been growing rapidly in Asian countries causing a range of socio-economic and environmental problems. With climate change mitigation becoming a pressing task for all nations, he expressed hope that the forthcoming COP21 in Paris would establish an equitable and effective framework on climate change with the participation of all countries. Asia is a region that is highly vulnerable to natural disaster and the impacts of climate change, and recent large-scale disasters have systematically raised the importance of building climate and disaster resilient transport systems and services. He noted that 2015 marked the halfway point of the term of the Bangkok 2020 Declaration (2010-2020), which was adopted in 2010 as the guidelines for EST implementation by countries over a decade. This provides a good opportunity to assess progress. Japan has experienced serious environmental pollution and large-scale natural disasters and faced various challenges. While the recovery efforts from the 2011 Great East Japan Earthquake are still on-going, the Japanese experience in overcoming various problems could provide valuable lessons to Asian countries in both development and transport sector.

36. Delivering the opening statement, Hon. Mr. Bijaya Kumar Gachhadar, Deputy Prime Minister and Minister of Physical Infrastructure and Transport of the Government of Nepal, said that considering the unique circumstances of Nepal, effective and efficient transportation services still remain one of the biggest challenges for the country. Though more than 50,000 kilometers of road network has been replaced, most of them are not operational round the year. People of Nepal face problems in round the year access to the rural areas. The transportation network in rural area is confronted with instability due to environmental, geological and diverse-topographical conditions. Similarly the urban areas of Nepal are facing serious problems of congestion, vehicular emission, dust and particulate pollution, noise pollution and related health hazards. The poor knowledge of traffic rules among the road users as well as poor enforcement of road safety contributes to increasing traffic fatalities. The need to provide safe, reliable and comfortable transportation services demands further cooperation and collaboration through sharing of international experiences, practices and skills. This will not only build the capacity of Nepal and knowledge, but also will help Nepal in enhancing its institutional management capacity.

37. Delivering a special address, Rt. Honourable Prime Minister Mr. K.P. Sharma Oli, of the Federal Democratic Republic of Nepal welcomed all the participants on behalf of the people of Nepal and the Government of Nepal. He extended sincere appreciation to all the co-organizers to select Kathmandu as the venue for the 9th Regional EST Forum in Asia. He attached great importance to the Forum in considering the current situation of Nepal. Nepal has recently emerged from transitional phase with the promulgation of the new constitution, which came after a long struggle for democracy and political rights. Under the new constitution, the country aims to streamline the backward sections of the society and the women through various welfare and reservation programmes. Nepal has entered into a new era of economic development. The government currently aims to build necessary infrastructures and ensure sustainable use of natural resources to modernize the whole country. He expressed the need to create a developed, modern, and democratic and environment friendly Nepalese

society, and in this regard the EST Forum is significant for Nepal. Learning and adopting international experiences and best practices through such Forums, Nepal can immensely benefit and reach a new height. In order to achieve environmentally sustainable transport in Nepal and to develop its cities and villages, he expressed his wish to work together with the international community. He underscored the importance of developing clean and smart cities in Nepal. He finally assured that all possible efforts will be put in building better public transport infrastructure and services such as electric metro railway system, electric buses, solar buses for Kathmandu and other cities to achieve the EST objectives. He called upon all the participants to visit various places of Kathmandu despite the on-going fuel crisis. He also assured to upgrade the roads and traffic rules in Nepal, and raise awareness of road users and drivers on various traffic rules. Environment and sustainable development are collective concern for all. He finally recognized the importance of the 9th Regional EST Forum in Nepal, and expected the outcome and recommendations suggested by the Forum would not only benefit Nepal, but also to all participating countries.

V. EST Plenary Session-1: Safe, Climate Adaptive and Disaster Resilient Transport System for Asia ~ How Can We Build Resilient Societies?

38. While transport is essential to economic, urban and social development, it is also creating externalities, such as traffic congestion, accidents, air pollution, as well as being responsible for 23% of global CO₂ emissions. In Asian countries, fatality rates due to traffic accident are higher than the world average. Outdoor air pollution, with the transport sector being a major contributor, is causing 100,000 premature deaths and associated economic cost of US\$ 81 billion each year in this region. At the same time, transport systems in this region are also prone to natural disasters and growing occurrence of extreme climate events.

39. Damage to transport infrastructure and the recovery of the transport system from disasters have become an acute challenge to many Asian countries, hence driving the need and desire to build a safe, climate adaptive and disaster resilient transport system. Several measures were identified as enablers to resilient transportation, such as integrated transport planning and transport demand management, prioritizing public and non-motorized transport, improving transport system safety, identifying critical transport infrastructure, promoting low carbon and high occupancy transport, enhancing data collection and analysis, as well as others.

40. In a broader perspective, it was acknowledged that ecological, economic and social resilience are inter-related, and so an integrated approach should be taken towards enhancing resilience in the transport sector. The crux of the issue then shifts from building a resilient transport system to building resilient societies in the long term through sustainable transport solutions and other integrated measures.

41. It is encouraging that several Asian countries such as the Philippines, Indonesia, Nepal and Bhutan have proactively taken resilience into account in transport infrastructure project planning in response to their own needs and local challenges. However, resilience is still not considered an integral part of transport policies in all countries in this region. To better integrate resilience in transport policies, programmes, project designs and budget planning, financial, institutional and technical constraints have to be first overcome.

42. Further, there is also a need to better understand the nexus between EST and resilience. While resilience is the ability of a system, community or society to resist, absorb, accommodate and recover from the impacts of a hazard in a timely and efficient manner, risk and resilience is strongly related, and the level of resilience of, for example, a transport system should be determined by both the level

of risk the project proponent is willing to undertake and the expected performance requirements of the system.

43. With that understanding, resilient transport infrastructures and systems should be considered in the context of both climate change and other natural and composite disasters, and therefore adaptation and mitigation measures that gear towards enhanced resilience should be comprehensive from both perspectives. Attention should also be paid to the process of transition to a resilient state, rather than just focusing on the infrastructure or system becoming resistant to a certain hazard.

44. It is essential to appreciate the wide scope of resilience. First, resilience could be achieved through both physical and social infrastructure. Japanese experience shows that disaster mitigation planning and regular drills have contributed to resilient building practices. Second, resilience should be considered in both the urban and rural context. There are a number of examples in Asia where the provision of mass transit services help enhance resilience of both the urban and rural communities. Third, while building for resilience can be costly, it will also create new opportunities and benefits. Broader and deeper knowledge about resilience is crucial for raising awareness among policy makers, politicians and people. Fourth, in order for Asian countries and cities to be on resilient pathways, necessary institutional arrangements will be necessary. Such institutional arrangements should foster state of art research and development, innovation, monitoring and evaluation of current transport policies and programmes, including budget allocation, and interagency coordination (transport, environment, planning, financing and disaster management agencies at both local and national level).

45. Each EST country is plotting their own pathway in building a safe, climate adaptive and disaster resilient transport system, which aligns with EST goals under the Bangkok 2020 Declaration (2010-2020). In doing so it is important for government agencies to relate their transport strategy development and infrastructure planning to local needs and characteristics, and to take into account indigenous innovations and mechanisms developed by local communities. In doing so, the risk of undermining established local and community resilience as a result of new infrastructure or systems being planned and implemented will be reduced.

VI. *EST Plenary Session-2: Nepal EST Strategy for Resilient & Sustainable Development ~ How Can Nepal Finance and Implement Resilient Transport Development?*

46. The newly drafted Nepal EST Strategy (2015-2040) has been prepared within the framework of the Regional EST Forum in Asia and in response to the Bangkok 2020 Declaration. Recent events put a strong emphasis on the need for adaptation and resilience planning in which sustainable transport can play an important role. The context specific issues facing Nepal were recognized, both the variable and extreme terrain and the vulnerability to earthquakes and the impacts of climate change (e.g. flooding, landslides). In addition, increasing urbanization and motorization are growing challenges for the transport system.

47. While the vision and intent of the strategy was felt to be sound, the dynamic social, environmental and developmental context presents some challenges for the medium and long term of the Nepal EST Strategy. It was also recommended to translate the vision and 25-year timeframe into shorter term, concrete actions that can deliver more immediate impact, realign the underpinning principles, realize environmental, social and economic goals and provide a stronger framework for leveraging investment from development banks and private investors, including the local business community.

48. Financing measures to support implementation of the strategy (Goal 18, Bangkok 2020 Declaration) are critical for its success. It was suggested to investigate the range of high quality, cost

effective options such as BRT that are available and to think flexibly about financial resources and see the potential for simpler or smaller scale initiatives which can have an impact on CO₂ emissions (e.g. motorcycle, truck and vehicle standards and compliance checks). Public Private Partnerships (PPP) were noted as a good resource for realizing private investment in resilience, and it was important to develop first PPP expertise and to ensure appropriate regulation to enable and manage this type of partnership. In addition, the need for developing clear financial structures and tax systems was identified to provide for regular maintenance of transport infrastructure and services in Nepal to improve climate resilience and disaster response.

49. With rapid urbanization in Nepal, initiatives for sustainable urban mobility need to be based on mass transit and improvements in conditions for pedestrians (and cycling). Planning for a modern, major transit corridor (Goal 5, Bangkok 2020 Declaration) that delivers multi-modal outcomes in collaboration with local stakeholders can establish a new benchmark for urban infrastructure and help attract funding. For rural transport and the road network, there have been positive accomplishments, and discussions reinforced the need for a road infrastructure system that recognizes a technical classification framework and assesses the vulnerability of the roads for better construction and management practices towards resilience.

50. The Forum recognized that implementation of Nepal EST Strategy will not only be an important step of the Government of Nepal towards achieving the internationally agreed SDGs, but would also facilitate Nepal to economically progress on the path of sustainability and resilience.

VII. *EST Plenary Session-3: Country Initiatives/Achievements on Bangkok 2020 Declaration*

51. Country presentations were made by Afghanistan, Bangladesh, Bhutan, Cambodia, Indonesia, Japan, Republic of Korea, Lao PDR, Malaysia, Maldives, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, Timor-Leste and Viet Nam. The countries presented their achievements to date towards meeting the targets of the Bangkok 2020 Declaration (2010-2020), as well as new and major initiatives. The presentations also highlighted a wide range of critical challenges faced in implementing various EST measures.

52. All of the presenting countries are positively developing their transport plans, programmes, and strategies and have made important steps towards achieving the Goals of the Bangkok 2020 Declaration. The topics that were brought up by most countries concerned new transport master plans and urban development plans. Several countries spoke about cutting CO₂ emissions, whereas other smaller and disaster prone nations highlighted prevention of landslides, building bridges and paving roads to ensure connectivity for villages and remote communities. Road safety remains a key issue among all the countries, though some countries have made improvements. Understandably, air pollution is major concern in many countries. Upgrading vehicle emission standards and mandating emission testing and inspection and maintenance (I/M) are in the pipeline in several countries such as Indonesia and Malaysia. Premium diesel and low sulphur fuels were also on the policy agenda of many countries to reduce lethal particulate matters (PM₁₀, PM_{2.5}).

53. Most of the countries reported progress in increasing the mode share from public transport services. BRT (or extension of existing corridors) are seen as an attractive solution in several of the cities. CNG (in Bangladesh) and LPG (in Afghanistan) are also on the agenda. The electrification of trains and cars is another strategic area together with more urban rail projects in growing cities. It is important to note that several countries, such as Malaysia and Bhutan, have made significant steps towards the promotion of Electric Vehicles. Lao PDR has introduced E-tuktuks in Luang Prabang for a trial scheme with 3 routes, and is looking forward to expand the scheme with 100 more E-tuktuks.

54. Countries also reported progress in terms of revising existing and preparing new laws and regulations in order to support control and enforcement. In Cambodia, for example, efforts have been made in the past years to revise laws on road and road traffic. On the promotion of NMT (non-motorized transport), while some progress has been made in several countries, more planning attention should be paid to the needs of pedestrians and cyclists. While there is a region-wide awareness on the large co-benefits of NMT, still it is considered peripheral to overall transport policy, planning and infrastructure development in many countries. Japan reported on upgrading of NMT facilities by creating pedestrian linkages and public space for the elderly and disabled.

55. While it is clear that encouraging progress is being made by different countries, countries also expressed different levels of concern in terms of barriers and challenges in implementing current EST projects and in pushing for new projects and plans. Among others, many challenges lie in project financing, land acquisition, public acceptance, institutional arrangement and coordination, and in some cases the lack of expertise and awareness on various aspects of EST.

56. The Forum recognized that if Asian countries effectively implement the Bangkok 2020 Declaration (2010-2020), Asia will be on the forefront in achieving sustainable transport, but would also be on path of resilience providing important complements towards international obligations on climate mitigation.

57. The Forum recognized the importance of not tying up resources in systems that are not flexible enough to respond to new challenges and local needs. It was recommended that countries should develop transport policies that are able to respond to upcoming changes. Among other EST measures, greening of freight is important measure to cut the CO₂ emissions. The Forum took note that too much money and resources are locked into metro solutions in smaller cities. It could be useful to have lifecycle analyses before any investment decisions are made. Public transport and freight services play important roles in modern cities and needs to be managed in a way to achieve social, economic and environmental objectives along with improving road safety.

58. The Forum recognized the need for better knowledge sharing and dissemination about sustainable transport plans to the general public and plans for monitoring and implementing new measures. Traffic and transport issues are complex and evolving and hence, policies should be able to deal with emerging topics as well. Sustainable urban design and planning was seen as a major issue and challenge to overcome. Several countries suffer from environmental and natural disasters but at the same time, countries have progressively gained experiences and developed actions plans in transport areas.

59. Parking policies and congestion pricing were recognized as effective tools for transport demand management and initial efforts are being made in this respect in Korea. The Forum recognized the importance of demonstration projects, as cities often do not always know how to proceed with the EST implementation. Training and capacity building workshops were recognized as important means to bridge such knowledge and technical gaps.

60. Indicators can play an important role, not only for measurement of the progress made on EST, but also for strengthening the information and knowledge-base at local and national level. Some countries reported on launching of green airports as an EST initiative.

61. The Forum proposed that under the framework of the Regional EST Forum in Asia, a list of best practices in EST areas could be compiled from all the country reports and put together for wider dissemination among EST member countries.

VIII. EST Plenary Session-4: Major Challenges, Progress & Achievements by countries on the implementation of Bangkok 2020 Declaration ~ Moving from Aichi (2005) to Kathmandu (2015)

62. Over the last decade, there have been 14 Asian EST-related events, and dozen reports and governmental declarations. Participants took the opportunity in this session to look back at the accomplishments, and to look forward to future needs and opportunities for what was described as a unique and convening mechanism on environmentally sustainable transport. It was generally agreed that the activities and outputs of the Forum have contributed to a positive vision of change toward sustainable transport in Asia and has helped develop a much greater awareness of sustainable transport best practices and acceptance of the need of sustainability in the transport sector. The EST forums have helped high-level Asian public officials, practitioners, and organizations develop a common vision for sustainable transport in the Asian region. The concept of Avoid-Shift-Improve, which provides a framework for prioritizing solutions to maximize total benefits, is now widely accepted and integrated in many policies of both international organizations and increasingly is reflected in transport policies in the EST region.

63. Further, the EST Forums in Asia have provided practical guidance concerning how to implement innovative projects and solutions. Starting in 2005, high-level Asian officials and their advisors have met to discuss, learn and coordinate transportation policies that balance economic, social and environmental goals. These Forums provide an opportunity for decision-makers and experts to share information and coordinate programs.

64. The EST Forums provide an important link with international agendas, such as the climate negotiations under UNFCCC and the global sustainable development agenda (and its predecessors) on the one hand and local as well national development strategies and plans on the other hand. In this sense, it is an important communication and translation tool, helping to shape and inform the global dialogue on sustainable transport. By partnering with international organizations such as UN DESA, UNCRD, SLoCaT, ESCAP, GIZ, WHO, Clean Air Asia, ITDP, and many other partners, the EST process has managed to maximize the outreach as well as to harmonize the use of resources.

65. The Forums have helped to improve the understanding of sustainable transport concepts: policy makers, practitioners and the general public increasingly support sustainable transport concepts, such as improved walking, cycling and public transit. In Asia, people and policymakers now believe they can make a difference and change transport to be more sustainable and serve people better. Along with a much higher awareness of sustainable transport there are also many pilot projects for more efficient vehicles, cleaner fuels, walkable streets and rapid transit. High quality BRT has contributed to greater environmental, social, and economic sustainability in several countries. Countries have also introduced Light Rail and Metro systems. Many countries and cities are making policy shifts toward more sustainable transport, including “green” transportation policies that support resource efficiency, land preservation and urban quality of life. Others recommend that, “Urban transport should grow along a sustainable path to support the desired economic growth, protect the environment and to improve the quality of life.” General support for the principles of Avoid, Shift and Improve has enabled progress towards sustainable transport.

66. However, as Asian countries are experiencing growth and urbanization at a scale that is unprecedented in history, many Asian cities are still facing severe problems including congestion and pollution problems, rising inequity, and declining quality of life. Climate change and associated threats, such as sea level rise and extreme weather events, have become more apparent and demand for action is increasing. Nation-wide or even city-wide implementation of best practices is still not common. Appropriate pricing of transport fuels and services is a key step that is still not widely adopted. It was

acknowledged that in many cases planning around sustainable transport and land use is still fragmented, funding and financing are still not always sufficient for large scale change, and gender issues in transport are also still not widely acknowledged or addressed. It remains difficult to compete with motorized two-wheelers in Asia. Also there is a greater need to address rural transport issues. Still also more coordination with national ministries, city mayors, and other transportation planning professionals is needed. Another challenge is the large number of policies that affect transport but are not directly controlled by transport agencies.

67. Specifically, critical EST areas for Asian countries over the post-2015 development era include bringing more professional development workshops to a wider audience of participants, such as more city government and technical practitioners to increase the potential of this forum through wider awareness of sustainable transport. Participants also asked to keep focusing on a multi-sectoral approach, build capacity to adopt of new technologies, build capacity to increase funding and financing for sustainable transport, develop rural transport frameworks, and more on coordinating land use and transportation, as well as provide resources for responding to common criticisms and political concerns on sustainable transport policies and programs.

68. EST process is further expected to continue the promotion of a culture of innovation that encourages public officials and practitioners to implement pilot projects to test new ideas. New ideas are best coupled with a plan that identifies how it can be scaled up if the concept proves to be successful, to provide a platform to develop global or regional standards and best practices for planning data collection as well as to help public officials and practitioners understand the problems that people with disabilities face while traveling.

69. In the context of the 2030 Agenda for Sustainable Development, the EST is an important pillar in the emerging landscape of multi-stakeholder partnerships, which are encouraged and promoted in order to foster sustainable development.

70. The Forum expressed its deep appreciation to the Government of Japan for its long term support to the EST Forum as well as to UNCRD for its active role as Secretariat to the EST Forum.

71. The Forum endorsed few new activities for 2016 under the overall framework of the Regional EST Forum in Asia. These include – (a) South Asia Sub-Regional Training Workshops on Building Resilient and Smart Cities and (b) South East Asia Sub-Regional Training Workshops on Building Resilient and Smart Cities. A proposal on having a technical workshop on LRT system or other alternatives in Bhutan was mooted.

IX. *EST Plenary Session-5: Funding Resilient Transport Infrastructure and Services*

72. Many Asian countries face significant infrastructure deficits and also have limited funding to address them. This underscores the importance of smart infrastructure investment: ensuring that investments are cost-effective, that private funding and debt-finance resources are pursued, and that investments are resilient to reduce the risk posed by increasing frequency and magnitude natural disasters. Awareness of the importance of funding resilient transport infrastructure and services is growing amongst Asian countries.

73. Best practice in addressing sustainable and resilient infrastructure gaps in countries requires assessing infrastructure levels and mobilizing sufficient resources to implement the cost-effective investments. Urban rapid transit is one type of sustainable infrastructure that many Asian countries have a deficit in. One easy strategy for assessing a country's urban rapid transit infrastructure

inventory levels is to normalize it with urban population and area, allowing it to be compared over time and against that of other countries.

74. Research shows that key best practices for funding rapid transit include spending at least 0.15% of national GDP on urban rapid transit infrastructure development, while several developed and developing countries spend more than that. Cities have the most political accountability to delivering high quality public transit, and research shows that when cities control a significant amount of rapid transit funding, they have higher infrastructure growth and more cost-effective investments. Another way of ensuring effective project funding is to ensure that limited funding is effectively leveraged with debt to finance 70% of a project's total cost, ideally. Countries should pursue low-cost debt-finance sources such as development banks or by improving bond ratings to access bond markets. Finally, national governments can support the growth of this infrastructure by strengthening transport governance at the metropolitan level, requiring long-range budget-constrained transport planning, and building technical capacity to plan resilient infrastructure through capacity building programs and design standards. It was also noted that not all resilience investments are asset-based, some important investments are in planning for disasters.

75. National and local governments, as well as multi-lateral organizations can play an important role in mainstreaming resilient planning and building capacity to plan and design resilient infrastructure by setting design standards for project financing as well as convening stakeholders in capacity building programs. Transport investments must be evaluated by their cost-effectiveness in meeting mobility needs, their ability to reduce growth in greenhouse gases, as well as their resilience in the face of natural disasters. ODA agencies should consider that in many cases the most cost-effective investments might first be in many smaller investments in resilience retrofits to a country's existing infrastructure in place of fewer large investments in building new infrastructure. Climate mitigation investments should also employ resilience standards to ensure such investments and the carbon they are designed to reduce will not be unduly threatened by natural disasters. Insurance companies are major stakeholders and signaling agents - especially for private sector investments, but also for public sector - for determining the risk to infrastructure and the value and need for resilience investments. Resilience still needs innovation on how to plan, value, and assess risks.

X. *EST Plenary Session-6: Sustainable Rural Transport for Resilient Rural Community, Food Security & Poverty Eradication*

76. Rural transport is one of the important topics for the EST Forum for several reasons: there is a great need for improved rural access, as 1 billion people worldwide lack access to an all-season road; there are great potential benefits to sustainable development, as nearly 80% of the extreme poor live in rural areas; and there is little coordinated action among key sectors (e.g. transport, agriculture, health care), despite the fact that 30% of the global population will remain rural in 2030.

77. Rural transport is a critical enabler of several of the recently-adopted Sustainable Development Goals (SDGs) and associated targets. Rural transport makes direct contributions to Targets 1.4 (access to basic services), 2.1 (access to nutritious food), 9.1 (reliable and resilient infrastructure), and 11.2 (sustainable transport systems). Rural transport also makes indirect contributions to Targets 6.1 (access to safe drinking water), 12.3 (reduction of food loss), and 13.1 (climate adaptation). The Rural Access Programme of Nepal promotes economic development by developing gender-equitable approaches to rural road project management, and Afghanistan's National Rural Access Programme aims to improve all-season accessibility in four provinces, expand maintenance practices, and build local capacity.

78. Efficient rural transport is crucial to ensuring food security while developing agriculture and reducing rural poverty. Reducing rural transport costs can raise farm-gate prices, increase farmers' incomes and reduce urban food prices. It can also facilitate delivery of farm inputs, increase agricultural yields, and reduce post-harvest losses, which in India amounts to approximately 40% of total production due in part to a lack of reliable rural transport options. This is being addressed through the Prime Minister's Rural Roads Program (PMGSY), which is to provide all-season farm-to-market connectivity in all villages with more than 500 people (about 180,000 villages) and develop capacity of Indian States.

79. In defining rural resilience, we must not focus solely on climate or disaster resilience, but also on socio-economic resilience. Improved rural transport systems and connectivity can increase productivity, incomes and livelihoods in rural communities and thus their contribution to GDP. Furthermore, improved rural transport can support more efficient evacuation, relief mobilization, and rehabilitation. Importantly, investment in resilient rural transport infrastructure and services can progressively reduce government expenditures by limiting the extent of damages and losses during extreme events.

80. The discussion identified some key aspects for advancing rural road networks, being: community based management and maintenance, targeted investment with a phased approach to critical points in the system; continuing improvements in planning and engineering for these particular road networks and better exchange between government agencies, technical experts, political actors and the private sector.

81. The Forum emphasized the importance of raising the political priority of rural transport at national and global levels; prioritizing funding streams for rural passenger and freight infrastructure and services including maintenance; accelerating efforts to increase resilience of all aspects of rural transport. The Forum confirmed that effective rural transport programs require an active involvement of communities. Participants endorsed the continued integration of rural transport in the EST Forum.

XI. *EST Plenary Session-7: Climate Adaptation & Resilience in Transport Sector of Asia*

82. Considerable progress has been made in the last decade to promote mitigation of climate change in the transport sector, and it is encouraging to see that initial building blocks for greater action on adaptation in the transport sector are also in development. Substantive work on improving the knowledge base on adaptation to climate change in the transport sector is ongoing, which includes guidelines and toolkits for major modes of transport, and sector-wide summary reports to increase resilience for public transport, roadways in the United States and Europe, and there is potential to emulate such efforts on a broader scale among Asian countries.

83. The growing interest in the development of railways across the world and in the Asian region offers an opportunity to improve national access and regional connectivity in a manner that raises overall resilience of the transport sector by making adaptation and resilience part of the expansion of railways.

84. The Bangkok 2020 Declaration on EST offers considerable potential for a greater focus on adaptation and resilience. Greater prominence for adaptation and resilience in the EST Framework will help member countries of the EST Forum to follow-up on the outcomes of COP21 in Paris, where it is expected that adaptation will be a key part of a new global agreement on climate change. The EST Forum is well placed to apply the growing global knowledge-base on climate adaptation in the transport sector to national level policies in the Asia Pacific region.

85. Furthermore, a number of bilateral and multilateral development organizations are implementing a first generation of pilot projects on adaptation in the transport sector and developing policies and screening tools to assess climate risks for projects, including those in the transport sectors. In particular, the Nordic Development Fund is drawing lessons from eight adaptation-oriented projects, which are co-financed with regional MDBs and which include rural road resilience projects in Cambodia and Viet Nam in cooperation with the Asian Development Bank.

86. Despite these encouraging steps, the attention of country delegations, sub-national actors, and international funding institutions is still largely focused on climate mitigation in the transport sector, as reflected in the large number of countries that have specified mitigation activities through INDCs submitted to the UNFCCC. In contrast, few countries have included transport adaptation measures in their INDCs, many National Adaptation Plans (NAPs) show little detail on transport measures, and funding institutions and climate finance instruments are still largely focused on mitigation rather than adaptation projects, especially in the transport sector.

87. The experience from Nepal suggests that there is more work to be done in developing data and methodologies based on hydrology, weather patterns, geo-engineering, hydro-engineering, bio-engineering to develop new design standards for vulnerability assessments and adaptive infrastructure such as roads, bridges, transit infrastructure, drainage, retaining walls, slope protection, etc.

88. The case of Indian railways demonstrated how wider nationwide connectivity could contribute toward building a resilient society. Use of solar panel mounted systems on Indian railways provided a good case on how use of renewable energy could make the rail operations more resilient. The presentation by International Union of Railways (UIC) provided a good example on how railways could play an important role towards resilience and low carbon solutions in post-2015 development context.

89. Discussions by the Forum highlighted the urgent and specific adaptation needs of small island developing states (SIDS). Along with financing, specific adaptation measures are critical for the sustainability of SIDS.

90. Based on these conclusions, it is clear that there is need for more comprehensive approaches in the area of transport adaptation and resilience. Initial recommendations for strengthening the integration of climate adaptation and resilience in the EST process include raising the profile of adaptation in national and local-level policies on climate change and sustainable development; including more detailed strategies for transport sector adaptation in NAPs, and mainstreaming adaptation measures into large investment projects to increase local and national ownership.

XIV. The Way Forward

91. Given the frequency and magnitude of natural disasters (flood, earthquake, cyclones, landslides, etc.) are on the rise across Asia, the Forum recognized the need for developing countries and cities of Asia to better integrate “resilience” as an important strategy and component of their national planning, budgeting and financing of transport infrastructure and services development. Resilient transport policy, planning, and infrastructure development can help cities in many ways, such as - enhance cities’ ability for efficient and fast evacuation and relief distribution; improve the ability of cities and communities to withstand disaster and adverse effect of climate change; facilitate cities’ development pathway for energy efficiency and energy security through low-carbon transport options; improve road safety measures and provisions of people-friendly transport infrastructures; disaster risk reduction and enhance adaptability; long term cost benefits for the governments by reducing future maintenance and reconstruction cost; and increase in international investment and business opportunities.

92. The Forum recommended deepening further understanding on the nexus between EST and resilience. It is essential to build the capacity of the national and city authorities (mayors, municipal commissioners, transport authorities, etc.) in the areas of transport policy and planning, including infrastructure development, in the context of resilient urban design, which would augment the efforts of national government authorities in implementing SDG 11 (make cities and human settlements inclusive, safe, resilient and sustainable) under the 2030 Agenda for Sustainable Development adopted by all UN member countries at the UN Sustainable Development Summit held on 25-27 September 2015.

93. The Forum recognized the challenges in funding resilient transport infrastructure in developing countries. As the private sector are known to be major custodian of both funds and technologies, it could be strategic for countries and cities to explore all feasible forms of PPP (public-private-partnerships) in building next generation transport infrastructures towards resilience. In this regard, the local and national government policies need to be conducive in promoting PPPs towards development of resilient transport infrastructure and services. The countries and cities could also consider promoting new areas of sustainable business opportunities that would help proliferate resilient transport system and services. To this regard, promotion of triangular cooperation between government, private, and scientific and research organizations in the areas of transport sector resilience could be helpful. Additional efforts are, in this context, also to be made on learning from insurance companies.

94. In the context of enhancing resilience and livelihood security of rural community, the Forum recognized the key role of rural transport. Under the 2030 Sustainable Development Agenda, it is important to consider proper accessibility of rural community and farmers to essential utilities – education and health facilities, market and work places. To this end, the Regional EST Forum in Asia should consider strengthening policy consultations in the areas of rural transport, sustainable development, and resilience. Efforts could be put to build stronger cooperation with a number of existing and new prospective partners of EST process such as – UN ESCAP, DFID, the SLoCaT Partnership, SECAP, ASCAP, ICIMOD, organizations specialized in rural and regional development planning, among others. Such efforts can benefit from the greater support of, and engagement by the SLoCaT Partnership in the EST Forum, which was announced during the Ninth EST Forum. The Forum could also make efforts to explore the possible role of intelligent transportation system (ITS) in strengthening rural and regional transport and connectivity towards disaster resilience.

95. Under the framework of the Regional EST Forum, possible collaborating arrangements and partnerships could be explored to organize regular training and technical workshops in building awareness and capacity of national and city authorities towards sustainable and resilient urban transport policy, planning and design. This would help national and local authorities to pursue their economic and development agenda to align with disaster and climate resilient pathways.

XV. Closing Session

96. On behalf of the Government of Lao PDR, Mr. Viengsavath Siphandone, Director General, Department of Transport, Ministry of Public Works and Transport, officially announced that Lao PDR would host the 10th Regional EST Forum in Asia in 2016. In this regard, the participants of the Nepal EST Forum witnessed a handing over from the host country, Nepal, to the next host, the Government of Lao PDR.

97. In her closing remarks, Ms. Chikako Takase, Director of UNCRD, expressed her deep appreciation to the Ministry of Physical Infrastructure and Transport Government of the Federal

Democratic Republic of Nepal for successfully hosting the 9th Regional Environmentally Sustainable Transport (EST) Forum in Asia and thanked the Ministry of the Environment of Japan for its continued generous support. She also noted the successful collaboration with the UN ESCAP and SLoCaT in respectively co-organizing the Regional Seminar on Safe, Climate Adaptive and Disaster Resilient Transport for Sustainable Development and the Regional Dialogue on Transport and Climate Change. She thanked all the participants, including national and local government representatives, resource persons, Experts Members of the Regional EST Forum, and representatives of the international organizations, for their active participation and contributions in discussions, which contributed to the success of the Forum and made the outcome of the Forum, the Chair's Summary, a very rich document. Furthermore, she acknowledged the hard work of the event company and the young student volunteers. She noted that the Forum benefitted from focused and rich discussions around the main theme of "EST for Resiliency," including the Nepal EST Strategy with the goal of "resilient and sustainable development," and the inter-related themes, such as safe, climate adaptive and sustainable rural transport. Being at the mid-point of the Bangkok 2020 Declaration programme, she also noted the fact that the Forum had an opportunity to take stock of the past 10 years of EST process. Looking forward, she expressed the hope that at the next Forum the participating countries could share what they have done during the year to progress on the Bangkok 2020 Declaration and the 2030 Agenda for Sustainable Development. In this regard, she urged all international organizations, bi-lateral and multi-lateral donors as well as multilateral development banks, such as ADB and the World Bank, to provide necessary technical assistance and support in implementing the Bangkok 2020 Declaration and the outcomes of the Forum, and invited more active involvement of ADB in the future Forums. She finally, thanked the Government of Lao People's Democratic Republic for its kind offer to host the 10th Regional EST Forum in Asia.

98. Delivering the closing remarks on behalf of the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Mr. Peter O'Neill, Chief of Transport Policy and Development Section of Transport Division, expressed his satisfaction that over last four days the delegates and participants could discuss a wide selection of transport topic areas and related issues and challenges contributing their thoughts and new ideas. The Forum could identify better practices providing enhanced road and rail safety, making transport infrastructure and services more resilient to extreme events. The Forum also helped address how to adapt the transport systems to be more climate adaptive in creating smart and liveable cities which are less congested, less polluted and provide first and last kilometer connectivity from home to public transport through walking and cycling. For the future of the EST Forums, UN ESCAP would look at how to maximize its impact and coverage with more and varied participation including the private sector. There is also need to look at how technological innovation and intelligent transport systems could help countries deliver better transport solutions. UN ESCAP's Transport Division is committed to promoting a more safe and sustainable regional transport connectivity, and to help achieve this he expressed hope that UN ESCAP would be able to repeat its collaboration with UNCRD for next year's Forum.

99. In his closing remarks, Mr. Teruyoshi Hayamizu, Councillor, Minister's Secretariat, Ministry of the Environment of Japan, appreciated the efforts and contributions of all the chairpersons, speakers, panelists, facilitators and rapporteurs. He appreciated the leadership and support of the staff members of UNCRD, UN-ESCAP and the Government of Nepal for leading the Forum to a great success. Quite a lot of suggestive discussions have been made even within a limited amount of time under the overall theme of "EST for Resiliency—Building Safe, Smart, Low-carbon and Resilient Cities in Asia". Natural disasters occasionally cause great loss both in human life and economy. If the countries can establish resilient transport infrastructure and services before large-scale natural disasters and climate change, it would lead to effective evacuation, rescue, restoration and reconstruction as

well as to remarkable reduction of economic loss in the long run. Resiliency is an indispensable subject to overcome in Asian region that is vulnerable to natural disaster and the impacts of climate change. This year is the tenth anniversary since the launching of the Regional EST Forum in Asia, and marks half the way of the full term of the Bangkok 2020 Declaration. It provides a good opportunity to come up with an intermediate review of the efforts and progress made for further development of EST. Furthermore, he expressed hope that the proposed Sub-regional Training Workshops be held next year, mainly for the capacity-building of the local governments, under the theme of building resilient and smart cities, would provide a more practical framework for the countries to develop specific EST projects and programmes. He urged international donor agencies to provide continuous support for these new EST initiatives. Keeping the outcome of this Forum in mind, and respecting Asia's characteristically rich and diverse culture, history, society and economy, he further suggested that the countries should move forward together in close cooperation towards the realization of human-friendly and environmentally sustainable transport.

100. Delivering the final concluding remarks, Hon. Mr. Bijaya Kumar Gachhadar, Deputy Prime Minister and Minister of Physical Infrastructure and Transport of the Government of Nepal, expressed his deep appreciation for the efforts of all government delegates, participants, resource persons, co-organizers, partners and supporting organizations for successfully organizing the Forum. Recognizing the several preparatory visits of UNCRD visits, he also extended his heartfelt appreciations to all student volunteers, security personnel, hotel management staffs, and his own Ministry staffs for their contributions. He expressed hope that the outcomes of the Nepal EST Forum adopted would be very helpful for all the countries. He urged all the participants to bring back the message home and start discussions and take necessary initiatives to enhance safety, sustainability and resiliency of the transport system in their countries and cities. He assured that Nepal would utilize the outcomes in finalizing the National Sustainable Transport Strategy for Nepal, which will be adopted in the due course of time. He finally thanked the Government of Lao PDR for its decision to host the 10th Regional EST Forum in Asia in 2016.

Annex 1: List of Participants