

# Meeting Summary

## Fifth Regional Environmentally Sustainable Transport (EST) Forum in Asia

### “A New Decade in Sustainable Transport”

23-25 August 2010, Bangkok, Thailand

#### I. Introduction

1. The United Nations Centre for Regional Development (UNCRD), Ministry of Natural Resources and Environment (MONRE) of the Kingdom of Thailand, Ministry of the Environment of the Government of Japan (MoEJ), and United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), jointly organized the Fifth Regional Environmentally Sustainable Transport (EST) Forum from 23 to 25 August 2010 in Bangkok, Thailand. The Forum was supported by various international organizations such as the World Health Organization (WHO), German Technical Cooperation (GTZ), ASEAN-German Technical Cooperation -- Clean Air for Smaller Cities, Swedish International Development Agency (Sida), Japan International Cooperation Agency (JICA), Asian Development Bank (ADB), Clean Air Initiative for Asian Cities (CAI-Asia) Center, International Association of Public Transport (UITP), The Institute for Transportation and Development Policy (ITDP), AIT-UNEP Regional Resource Centre for Asia and the Pacific (RRC.AP), and VIVA. The Forum was attended by approximately 200 participants, comprising government representatives from twenty-two Asian countries including ten member countries of the Association of South East Asian Nations (ASEAN), eight member countries of the South Asia Co-operative Environment Programme (SACEP), People’s Republic of China (hereinafter, China), Japan, Republic of Korea, and Mongolia, and Subsidiary Expert Group Members of the Regional EST Forum, international resource persons, representatives from various UN and international organizations, and local observers from Thailand.
2. The fifth Forum was intended to contribute towards improving understanding and strengthening regional consensus in terms of sustainable policy options, and technological and institutional measures that promote sustainable and low-carbon-transport; address and identify opportunities for collaborative actions and partnerships, including international financial mechanism, for implementing affordable, economically viable, socially acceptable and environmentally sound transport systems in developing countries; illustrate innovative initiatives, achievements, and good practices for improving the public transportation system, increasing fuel efficiency, and greening freight transport; facilitate international cooperation for capacity-building activities, including wider-scale adoption and proliferation of various EST measures at the local and national levels; and enhance regional input to the 19th Session of the Commission on Sustainable Development (CSD-19).
3. The following meeting summary reviews the major points of the discussions and highlights the issues and options that were addressed towards environmentally sustainable transport in Asia,

including the consensus that was reached among the countries and participants through the adoption of the *Bangkok Declaration for 2020 -- Sustainable Transport Goals for 2010-2020*, which outlines twenty voluntary goals to be addressed over the next decade.

## II. Opening Session

4. In welcoming the participants, Mr. Kazunobu Onogawa, Director of UNCRD, drew attention as to how Asian countries are facing an increasing number of issues and challenges in the environment and transport sectors, including their implications on the earth's climate. Although the transport sector has played a significant role in contributing to Asia's remarkable economic growth, it has at the same time caused major concerns not only in terms of energy security for the Asian region, but also air pollution, greenhouse gas (GHG) emissions, traffic congestion, injuries and fatalities due to traffic accidents, freight inefficiencies, greater rural-to-urban migration, and loss in economic productivity. The urban transport sector is one of the fastest-growing sources of GHG emissions. Currently 1.6 billion people or 40 per cent of Asians live in urban areas and by 2030 the majority (about 2.7 billion) of the people will be living in cities and towns that will have significant implications on sustainability in the transport sector. Any serious effort to mitigate GHG emissions will have to include major reform of existing transport systems and, in particular, it will be necessary to take measures to reduce the increase in private motorized vehicles as the region undergoes rapid urbanization. He appealed to the Asian community to promote EST as an alternative to uncontrolled motorization and its related problems and as a complementary package of public transport, high quality footpaths and cycleways, vehicle restriction measures, clean fuels, and road safety programmes along with a set of technologies and practices that encompasses world best practices in accessibility, mobility, affordability, and safety. EST should not be considered as being donor-driven. A strong political will is crucial for mainstreaming EST in overall transport policy, planning, and development.
5. Mr. Osami Sagisaka, Director General of the Ministry of the Environment of the Government of Japan, welcomed the participants on behalf of his Ministry and expressed his appreciation to the co-organizers. Acknowledging the progress made under the Regional EST Forum in Asia, he underlined how both the Aichi and Seoul Statements have contributed to achieving a common understanding across Asia on EST. He also reiterated the importance of futuristic thinking and leadership of Asian countries so that environmental burden caused by rapid urbanization and motorization will not be passed on to the future generation. Referring to his Ministry's new vision for the 21st century, "Environmental and Economic Growth Vision," he stressed the importance of integrating environmental protection into social as well as economic objectives for sustainable development. EST is one such measure that meets the spirit of this vision.
6. The welcome message from Dr. Noeleen Heyzer, Under-Secretary-General of the United Nations and Executive Secretary of UN-ESCAP, underscored the critical role of the transport sector in rebalancing the three pillars of sustainability at the national and regional levels by providing access to markets, education, jobs, and health services for the people. Improved transport has already benefited populations in coastal areas, particularly near seaports, but there remains a substantial transport task of reaching out to large populations in deeper hinterlands as well as landlocked

countries to encourage inclusive prosperity. The importance of promoting energy-efficient modes of transportation, investing heavily on mass transport, and improving the efficiency of freight logistic services, was emphasized, as decisions on what kind of transport infrastructure is built today will have a great influence on the competitiveness, quality of life, and sustainability of Asian societies for subsequent decades. There is a need to pursue an integrated approach that includes, among other things, land-use planning, planning of non-motorized and public transport options in both urban and rural areas, infrastructure for intermodal freight systems, business models for financially viable operations and maintenance, communications and outreach messages to influence behavioural patterns, and clean technologies to achieve energy efficiency and low emissions. At the same time, sustainable infrastructure development, including transport, would be critical to pursue Green Growth as the regional strategy for achieving sustainable development and the basis for attaining the Millennium Development Goals (MDGs).

7. Recognizing that the discussion on EST summarized in the *Aichi Statement* (2005) and *Seoul Statement* (2009) were valuable inputs for the CSD-18, Dr. Luis Alberto Ferraté Felice, Chairman of the CSD-18 and Minister of the Environment and Natural Resources of Guatemala, emphasized that the transport sector has been a limitation to the sustainable development process via its negative social and environmental impacts. In particular, due to its significant share and expected increase in contribution to GHG emissions, the problem of the transport sector should be addressed as part of climate change solutions. It is important to link transportation issues not only with climate change, but also with urban growth, energy efficiency, air and noise pollution, safety, health, transparency and governance issues, environmental impact assessment, integrated land use planning, social equity and justice, among others. In order to make transport one of the avenues for economic growth, social equity, and part of climate change solutions, it should be planned with basic umbrella guidelines that include the reduction of overall transport-related ecological and carbon footprints, risk analysis for safety, development of new transportation ethics, establishment of better standards for the design, construction and operation of vehicles, infrastructure, fuels, lubricants, freight, and private and public transport, incentives for hybrid vehicles and others that use renewable energy sources, improved fuel efficiency and recycled materials, and creation of safe non-motorized routes for bicycling and walking.
8. Delivering the welcome and opening remarks on behalf of the host country, Thailand, Mr. Pimuk Simaraj, Vice Minister of the Ministry of Natural Resources and Environment, stated that a comprehensive EST approach is necessary in order to deal with multi-sectoral issues, including climate issues, related to transport driven by rapid motorization and economic development. EST can provide important complementary benefits, including the reduction of GHG emissions, deaths and injuries from road accidents, harmful noise levels, and traffic congestion levels. Along with various measures to reduce air pollution and GHG emissions from the transport sector, Thailand is making a significant investment towards improving surface transport-related infrastructures such as roadways, highways, highway interchanges, and expressways throughout the country. He expressed hope that the Forum would enhance awareness about sustainable transport options and measures among the participating countries which would help enhance the regional capacity to effectively deal with urban air pollution problems. The opening session was concluded with a moment of silence which was observed by the participants to mourn the untimely passing of Dr. Saksit Tridech, the Permanent Secretary of MONRE, Thailand, just before the Forum.

9. In his keynote address, Dr. Bindu Nath Lohani, Vice President of the Asian Development Bank, informed that environmentally sustainable growth is a key development agenda in ADB's Strategy 2020. Transport remains a critical development bottleneck in the region, requiring \$2.5 trillion investment in infrastructure. To address such need, under the Sustainable Transport Initiative, ADB is expected to annually provide \$3.4 billion to the transport sector for the 2010-2012 period, with a good portion of this going to urban transport and railways. ADB's strategy to address five emerging urban transport trends and challenges include: (1) control urbanization and motorization through holistic approaches to urban land use, public transport, and non-motorized transport infrastructures, such as pedestrian zones, walkways, and cycle paths; (2) mitigate climate change through the "avoid-shift-improve" approach and clean energy, including improving energy efficiency and the developing renewable energy supplies; (3) promote intraregional cooperation and integration by expanding regional road networks and competitive regional railway networks as economies are becoming more closely intertwined with each other and the rest of the world; (4) improve road safety and mitigate emerging social issues, including HIV/AIDS and human trafficking risks, by effectively addressing the social dimensions of transport (among the member countries of the ASEAN alone, road accidents are estimated to cost \$15 billion each year); and (5) use financing mechanisms and partnerships more effectively, including various ADB financial instruments. Further, ADB estimates that an integrated Asia and Pacific region, connected by world-class environmentally friendly infrastructure, will generate \$13 trillion in increased income for Asia over the next ten years and through its Sustainable Transport Initiative, ADB will continue to assist in bringing about changes towards creating a more sustainable transport pathway in the coming decade.
10. Delivering the second keynote address on India's experience in implementing sustainable urban transport, Prof. Saugata Roy, Minister of State for Urban Development of India, reiterated that unless urban transport-related problems were tackled poor mobility could become a major hurdle to economic growth and cause deterioration in the quality of life. The Ministry of Urban Development has taken the leading role in planning and coordinating various urban transport measures, including laying down various guidelines and specifications, mandating various reforms, taking up capacity-building programme, and facilitating funding for a number of projects. The most significant recent achievement is the development of the National Urban Transport Policy (NUTP), which offers a complete road map of various action strategies in the field of urban transport with a strong focus on 'moving people', not vehicles. Together with this Policy, Jawaharlal Nehru National Urban Renewal Mission (JnNURM), a reform-based mission, is providing Central Financial Assistance for the improvement of urban transport infrastructure in India. Also, his Ministry, together with the international organization, States and Cities, launched the Sustainable Urban Transport Project (SUTP) in five cities. India is also taking institutional actions for addressing climate change and air pollution. Service-level benchmarks developed in the field of urban transport have been adopted for the first time and all plans and projects are now being linked to the improvement of these benchmarks. The National Mission on Climate Change has been established which includes a total of eight sub-missions, one of which is Mission on Sustainable Habitat covering environmentally sustainable transport. Underscoring the need to find innovative ways of financing urban transport infrastructure, he urged the creation of a paradigm shift to focus on people and not vehicles. In concluding, he invited all participants to the third Urban Mobility India Conference and Exhibition

to be held in New Delhi from 3 to 5 December 2010, with a formal announcement to host the Sixth Regional EST Forum in Asia back-to-back with the next (fourth) national event in December 2011.

### **III. Partnerships to Make Sustainable and Low Carbon Transport Happen**

11. Humans love to move, travel, and discover by different ways and modes. In most cities, this mobility is dominated by personal motorized transport. Many people prefer cars for moving around. At the same time, a majority of people in the world will not be able to afford private motor vehicles in their lifetime. Private car-oriented development has failed to keep up with demand especially in the Asian region as well as created a number of serious problems. It is imperative to develop an urban transport system that serves the poor, young, old, and those who do not have access to transport. Space for people is continuing to decrease and about 10 per cent to 25 per cent of urban areas are taken up by road transportation infrastructure. In order to establish an environmentally sustainable transport system, it is necessary to consider urban space allocation for pedestrians, cyclists, and vehicles as appropriate.
12. Transport currently accounts for 13 per cent of global GHG emissions and about a little less than a quarter of the energy-related carbon dioxide emissions from the energy sector. Within the transport sector, road transport is responsible for the largest share of emissions. Imminent global warming requires action in developed and developing countries alike.
13. Low-carbon transportation should not be viewed as a burden but as means of enhancing livability and well-being that provide many other advantages. Low-carbon transport options that follow the principle of sustainable development will not only mitigate climate change, but also could help realize a number of co-benefits such as: (a) increased energy security as less oil needs to be imported. Resource conflicts can be avoided and transport users will not have to suffer from fuel price shocks; (b) reduced traffic congestion, air pollution, and noise will have a positive impact on the environment and human health; (c) reduced land demand by preventing urban sprawl and giving preference to semi-dense mixed-use neighbourhoods; (d) enhanced visibility and acknowledgement of cities that demonstrate leadership in establishing sustainable and modern low-carbon transportation systems that increase the competitiveness and attractiveness of cities and attract top business corporations, highly qualified workers, and employees to the country; and (e) cities and countries that achieve mitigation beyond baseline scenarios will be able to gain access to emission certificates and carbon-related funding schemes, pending future climate change agreements.
14. Available statistics on CO<sub>2</sub> emissions from the passenger transport versus modal split in selected cities show that the more the share of public transport, cycling, and walking, the less the CO<sub>2</sub> emissions per capita the city generates. The Avoid-Shift-Improve approach could be an effective solution (reduce or avoid travel or the need to travel, shift to more environmentally friendly modes, and improve the energy efficiency of transport modes and vehicle technology). It was noted that many countries have been able to achieve high Human Development Indices with relatively low motorized land transport.

15. Considering the fact that only twenty-five out of the thirty-six developing countries have submitted NAMAs (Nationally Appropriate Mitigation Actions) with explicit reference to the transport sector, it was proposed to encourage developing countries to include actions in the transport sector as part of NAMAs which will help them have access to support for capacity-building, technology transfer, and new sources of funding. Some of the elements of a vision for a low carbon transport system could include: (a) dense, but green, and mixed-use cities that provide jobs, and shopping and leisure facilities close to people's residential areas; (b) modern, high quality links between the centres and good integration of long-distance hubs with local transportation; (c) high quality alternatives to individual car-use, especially efficient public transport and good non-motorized transport infrastructure and its proper integration; (d) efficient, inter-modal freight transport and smart urban logistics that also includes clean vehicles; and (e) advanced technologies such as hybrid engines, alternative fuels or even electric motorbikes and cars.
16. Low-carbon transport is at the same time confronted with a number of barriers that need to be dealt with by strategic action. These barriers include: (a) time-lag between decisions and effects as some measures require a long-term approach that only takes effect when continuity in political decision making is achieved; (b) cross-cutting nature of transport as many decisions in other sectors influence transport demand; and (c) fragmented target group as everybody and all social groups have mobility needs and the sources of emissions are rather small. To make sustainable and low carbon transport happen, it is necessary to create wide range partnerships to realize high-efficiency transport (especially BRT, rail, NMT), phase out, as appropriate, public and private subsidies for fossil fuel, car manufacturing and use, create safer space for pedestrians and cyclists, and support people-friendly transit-oriented development. However, the current level of financing practices categorized by domestic public finances, official development assistance, private flows, and carbon finance are not adequate for supporting sustainable transport to meet 21<sup>st</sup> century needs. According to ITDP, over \$1 trillion is spent annually by governments in subsidizing motor fuels and this spurs the use of cars even more. This comes at the expense of investments in more pressing human needs for modern bus rapid transit, streets safe for walking and cycling, quality public space as well as health, housing, and education. New incentives are needed to spur smart investments. A new strategy, so-called ASAP, outlined in "A Paradigm Shift towards Sustainable Low-Carbon Transport -- Financing the Vision ASAP," a ITDP report released at the Forum, provides a framework comprising following four key elements: (a) ANALYSE the impacts of financing decisions taken by relevant stakeholders on sustainability; (b) SHIFT existing resources towards a sustainable direction; (c) ADD increased funding for those areas where resources are lacking; and (d) PAY for the full costs of transport, including environmental depreciation.
17. Realizing such sustainable transport strategies will require different collective actions by the major stakeholders, including, but not limited to, developing and developed country governments, multilateral development banks, export credit agencies, UNFCCC, and other climate finance institutions, private sectors, and civil society. The SLoCaT (Sustainable and Low Carbon Transport) Partnership is a good example. It was established to address both sustainable transport and climate change closely related to CSD goals, focusing on developing countries. The main objectives include: (a) contribute to sustainable development and the MDGs, especially providing access to/for goods and services by lower-income groups; (b) integrate sustainable, low carbon transport in climate negotiations; (c) integrate climate considerations in regional, national, and local transport policies;

and (d) mainstream sustainable low carbon transport in the strategies and operations of international development organizations. The four working groups of the partnership comprise: (1) transport data and GHG assessment, (2) post-2012 climate instruments, (3) finance, and (4) outreach and policy dialogue. Other examples of partnership include Environmentally Sustainable and Healthy Urban Transport (ESHUT), led by WHO that addresses health issues in the transport sector. It specifically aims at empowering Asian cities to promote a win-win strategy (reducing the carbon footprint and promoting and protecting health) for urban transport system. Together with UNCRD and AFHC (Alliance for Healthy Cities), ESHUT have been promoting sustainable transport activities in Asian cities, including Phnom Penh, Marikina, Changwon, Nagoya, and Seoul.

18. There was an expressed concern from the floor that the main focus of partnership and funding would be shifted from its original objectives to investment itself, especially if private investment were interested in only big infrastructure projects. It is very important to create a new paradigm of green business and also critical to secure public finance for sustainable transport to induce more private investments in order to create a good PPP model. It is also necessary to discuss transport issues in depth at UNFCCC negotiations such as the reform of CDM so that they can be more easily applied in transport sector and transport can be included in NAMAs. It would be a major challenge to realize sustainable transport given the fact that most people in developing countries have the aspiration of owning a private car. Asian countries have the option of not repeating the same mistake of becoming a car-dependent society, one made by developed countries in the past, and can take the great advantage of being second runners.

#### **IV. Funding Mechanisms to Make It Happen**

19. The provision of affordable public transport plays an important role in all aspects of sustainability – economic vitality, environmental protection, and social inclusion. As urban areas have the potential of generating 70 per cent to 80 per cent of the GDP, cities gain competitive advantage if they have robust public transport networks. Failing to invest in urban transport today will have medium- and long-term consequences on the creation of wealth in the future and undermine international and national policies to reduce poverty. The poorest people have no alternative but to walk, cycle or use public transport to have access to jobs, healthcare, education, and culture. Asia now loses between 2 per cent to 5 per cent of its GDP due to congestion, the majority of which occurs in urban areas.
20. Across much of the region, travel demand far exceeds the limited supply of transport infrastructure and services. Public transport, in particular, is often completely overwhelmed and bus and train services are overcrowded, unreliable, slow, and in general inconvenient. Therefore, addressing funding and financing sustainable urban transport is a crucial element for the future and economic vitality of the region. In recognition of this need, for instance, there has also been some considerable investment in public transport networks recently, in particular in China where impressive levels of investment have delivered many hundreds of kilometers of high speed rail, metro, and Bus Rapid Transit (BRT) systems within a short period of time. Another example includes the Jawaharlal Nehru National Urban Renewal Mission in India under which the central government provides a platform to coordinate significant financial support for urban transport infrastructure projects in selected cities of India, subject to the cities undertaking a set of institutional, structural, and fiscal

reforms necessary to improve their urban service delivery systems. In order to support urban infrastructure development and the provision of basic services for the poor in sixty-three of the largest cities in India under this Mission, the total support of the Government was envisaged at US\$ 11.1 billion, with matching contributions from states and municipalities to an overall fund of around US\$ 22 billion. During 2008-09, the commitment of central government assistance was increased by US\$ 3.7 billion, resulting in a total fund volume of US\$ 26 billion.

21. An urban public transport system should be designed to reduce the negative externalities of transport and improve the quality of life. Financial sustainability is one of necessary conditions for meeting these objectives. Financial sustainability of public transport requires outside financial support to fill the gap between income from passengers and overall costs of operations as well as infrastructure costs and other capital investment. There are a range of alternatives to fund public transport categorized by who pays -- polluter, beneficiary or general public. In practice, funding of public transport requires a combination of different mechanisms. For developing Asia, decisions taken today will affect its performance thirty to fifty years hence. The benefits of public transport go well beyond a direct cost-benefit analysis and, in most cases, public transport requires external finance in order to provide a level and quality of service at a price which could not otherwise be achieved.
22. Road pricing schemes may contain elements of both the Polluter Pays and Beneficiary Pays principles. The vehicles that cause congestion pay a fee to use the roads, but they also benefit from less congested roads. The proceeds of road pricing increasingly provide a source of income for investment in transport. In the right conditions and if there are viable alternatives, they also offer the benefit of providing a “push” measure that helps to encourage a modal shift to public transport and thus increase income from public transport fares.
23. Public-private-partnerships (PPP), under which construction and/or operation risks are shared between public authorities and the private sector, are becoming an accepted way of sharing the commercial risks of public transport and of raising project capital in many countries. Bringing in the private sector for the provision of urban transport should ideally create an environment of partnerships that take the best elements of efficiency of the private sector, combined with the support of the public sector, to deliver specified levels of service.
24. There are many potential market mechanisms which could pay for sustainable low-carbon transport, including fuel levies, parking levies, congestion charging, land value capture, and carbon emission reduction credits. The problem of CDM is that it is designed to pay for the reduction of GHG emissions. It therefore does not pay for other co-benefits generated from transport project, including, to name a few, increased energy security, air quality, enhanced accessibility for the poor, and safety. Other innovative solutions or new mechanisms could include the SO<sub>2</sub>/NO<sub>x</sub> market, shared savings of health and road safety benefits, and energy security markets.
25. Developing countries in Asia can take full benefit from various bilateral and multilateral development agencies. For example, JICA’s financial support in urban transport is one of the key sectors of JICA’s ODA. Its support for urban transport in Asia includes the Delhi Metro Project and Bangkok MRT Blue Line Project. Recipients can create a PPP with JICA’s financial assistance for ‘public’ investment. In the case of the Delhi Metro Project, it has been registered as a CDM project, expecting to generate additional income for the project with an annual emission reduction of 41,160

tCO<sub>2</sub>. CDM methodology development for the transport sector is a matter of great urgency because the share of registered transport CDM projects is 0.1 per cent, very small compared to its share in global GHG emissions – 13 per cent. There was a suggestion that a survey on the actual reduction of GHG emissions by existing mass rapid transit systems in Asia could contribute to further discussion on CDM methodology development. There was a suggestion for JICA to help promote EST in the region by being more supportive to the integration of NMT when it funds any mass rapid transit project by adding conditions favourable to NMT.

26. Global Environment Facility (GEF) is another important source of funding for developing countries in Asia. Currently, ten GEF agencies include UNDP, UNEP, World Bank, regional development banks (Europe, Asia, Africa, and Latin America), FAO, IFAD, and UNIDO. The level of financing to the sustainable urban transport sector has been increasing as GEF develops its operational phase. Under the climate change focal area of GEF V (2010-2014), ‘promote energy efficient, low-carbon transport and urban systems’ is included as one of the six strategic objectives. In addition, there has been a proposal of GEF SE Asia Sustainable Urban Transport Project targeting cities in Cambodia, Lao PDR, Malaysia, the Philippines, and Viet Nam. The Forum sought the simplification of GEF procedures and shifting of focus from mitigation to adaptation.
27. The Asian Development Bank recognizes the need for sustainable transport and has aligned its transport operations with its new initiative, Sustainable Transport Initiative (STI), towards a more accessible, safe, environmentally-friendly, and affordable transport system. Over the years, ADB’s support in the road sector has focused on improving access, enhancing economic opportunities, and increasing mobility, especially for remote rural communities and farmers rather than increasing road infrastructures in the city centre to worsen motorization. STI can be one of the good funding sources for Asian countries to turn their national environmentally sustainable transport strategies into a reality.

## V. EST Progress and Achievements in Asia

28. There has been varying degrees of achievements and progress made by Asian countries in EST areas as defined in the *Aichi Statement* (2005), including provision of safe, affordable, and efficient public transport systems, non-motorized transport (NMT) such as provision of exclusive bicycle and pedestrian lanes, intelligent transport system (ITS), and expansion of railways, etc. The countries shared their initiatives and measures on GHG emission reduction from the transport sector as well as future strategies and policies, including urban transport master plans, specific goals, and targets, towards achieving sustainable transport.
29. In most developing countries of Asia, the transportation sector is characterized by rapid motorization along with high private vehicle ownership, increased transport demand due to urbanization, poor condition of transport infrastructure and related facilities, deteriorating air quality due to lack of strict vehicle emission standards, usage of old and second-hand vehicles, inadequate and unaffordable public transport, increasing number of motorcycles, high traffic fatalities and injuries, and lack of institutional capacities to deal with multi-sectoral transport, environment, and social issues in an integrated way. In particular, even though non-motorized transport accounts for a

significant part of daily trips, for example, three-fourths of the total in Bangladesh, the provision of exclusive bicycle lanes and pedestrian footpaths are still generally lacking and has not been a part of future transport development plans. As a result, many people, in particular the low-income population and transport-sensitive groups, suffer from respiratory illnesses and die from traffic accidents, which places a huge economic and social burden on the country. Issues involved in the freight sector have become forgotten elements in most of the countries.

30. However, many Asian countries either have implemented or planned a number of national plans, initiatives, and projects to address sustainable transport. For example, Viet Nam, Lao PDR, and the Philippines are finalizing their national EST strategies.
31. In Malaysia's Tenth Malaysia Plan (2011-2015), among others, a people-centred public transport system and Clean Air Action Plan are planned for implementation. In addition, the National Green Technology Council headed by the Prime Minister of Malaysia promotes low carbon technology that covers the transport sector, among others. Malaysia is promoting and developing rail-based transportation which is more environmentally sustainable. The Maldives ambitiously announced its plans to become a carbon neutral country, replacing cars and boats from those that are diesel and petrol based to renewable electricity based. To become carbon neutral by 2020, it plans to connect all islands by public transport network. Bhutan has also established Transport Vision Plan 2040. In addition, a number of countries in the Asian region are planning to newly introduce or expand or upgrade already existing mass rapid public transport systems such as MRT, LRT, and BRT. The increase in number of such services is expected to improve the mobility, accessibility, and sustainability of cities.
32. The achievements made by Japan, Republic of Korea, and Singapore in regards to their public transportation systems are notable examples. There is growing recognition of the role of non-motorized transport in overall transport policy, planning, and development. For instance, a bicycle-sharing system has been introduced in many cities in Japan, offering the first 30 minutes for free with the convenient use of a smart card system. The Republic of Korea aims to expand nationwide bicycle networks up to 3,114 km by 2018 through the implementation of 'Road Diet' to secure bicycle space on the roads as well as provision of bicycle racks in trains and buses. Singapore also announced its National Cycling Plan in July 2010, targeting cycle-way development. These countries have also shown their commitment to the reduction of GHG emissions to mitigate climate change. For instance, Japan targets a 25 per cent reduction by 2020 compared to 1990, with the Republic of Korea and Singapore targeting a 30 per cent and 16 per cent reduction, respectively, by 2020 based on BAU. To meet these targets, various TDM measures are being carried out such as the mobility management programme in Japan, congestion charge and public-transport-only zone in the Republic of Korea, and electronic road pricing in Singapore. An integrated fare system has been implemented in many cities in the Republic of Korea, Japan, and Singapore. Other key targets of Singapore includes 20 per cent overall energy efficiency and reduction of PM2.5 levels to 12 µg/m<sup>3</sup> by 2020.
33. There is increased recognition of "Green Growth" aspects in the region. For instance, in consideration of the transport sector's (especially road transport) high and growing energy use, reliance on fossil fuels, GHG emissions, as well as the relentless growth in passenger and freight transport demand, the Government of the Republic of Korea has pledged to promote Green Growth

- through key transport strategies that include: (a) shifting to low-carbon transport and logistics, (b) reinforcing transport demand management, (c) developing low-carbon transport infrastructure and technology, (d) encouraging human-powered transport through pedestrian priority zone, bike sharing, and public transport only zone, and (e) integrating land-use and transport planning. The Republic of Korea is also putting considerable efforts and investments towards achieving a modal shift from road- to rail-based transport in order to realize Green Growth.
34. Despite recent efforts by Thailand to construct and provide off-road transport services such as the subway and sky train systems, Bangkok's passenger transport still largely relies on private cars, motorcycles, and buses (over 90 per cent). Roadside air pollution is a serious problem, compromising people's quality of life. The transport sector as a whole also contributed one-third of Thailand's GHG emissions. To rectify these issues, Thailand is taking a multi-pronged strategy in transport by: (a) shifting people from private vehicles to public transport by improving public transport services, such as the development of a BRT system in Bangkok, expansion of the subway/sky train system, and double-tracking of the inter-city railway; (b) tightening vehicle emission standards, and improving vehicle inspection and maintenance; (c) promoting clean fuels such as CNG and bio-diesel; (d) enhancing non-motorized transport (e.g., by providing bicycle lanes and parking); and (e) improving city planning with multimodal transport provision.
  35. For countries like Afghanistan, which is rebuilding itself following military conflict, the first priority has been security concerns rather than the environment and transport. This has resulted in EST measures not being properly implemented in the country. Poor transport infrastructure and absence of proper traffic regulations have led to loss of thousands of human lives. Fragmented responsibilities among the line ministries and agencies attribute to serious governance issues in the transport sector. For other landlocked countries like Bhutan, Lao PDR, and Mongolia, though vehicle ownership has been low, there are different sustainability issues linked with the transport sector. In order to meet growing travel demands, Bhutan is exploring the development of alternative modes of passenger and freight transport such as railways and ropeways or cable car networks in ecologically sensitive areas, remote areas, and tourist destinations to minimize the impact from road construction. Bhutan's Transport Vision Plan 2040 is in the pipeline and its Tenth Five-Year Plan and programmes covers the scope of expanding its urban transport services feasibility study to include eco-friendly modes of transport and alternative modes of transport such as ropeways and waterways, and intelligent transport systems.
  36. Mongolia is facing the issue of a continuous increase in motorization, with over 224,000 vehicles in 2009, mostly imported passenger cars. Sulphur dioxide, nitrogen dioxide, and carbon monoxide levels exceed air quality standards in Ulaanbaatar, and a main source of air pollution is the use of motor vehicles. Long-term plans such as the National Development Strategy, National Transport Strategy, and Road Master Plan have been drawn up to oversee future direction. Efforts were also made to amend laws and regulations on air quality to promote cleaner fuels such as natural gas and bio-ethanol, and to scrap old motor vehicles (12 years) and taxis (10 years).
  37. Countries such as India and China are in the process of expanding their mass public transportation system. In order to improve urban transport infrastructure and fill in the gaps, the investment requirement in India is estimated to be US\$ 30 billion in its 11th Five-Year Plan (2007-2012) and

about US\$ 97 billion over the next twenty years. India's response to urban transport demand and climate change includes, among others, its National Urban Transport Policy (2006); JnNURM, a sector reform-linked investment for bus, rail, and related infrastructure; National Action Plan on Climate Change; National Mission on Sustainable Habitat; national ambient air quality standards for twelve pollutants; and auto fuel switchover from Bharat Stage III to Bharat Stage IV. Under JnNURM, the BRTS projects cover 437 km sanctioned for ten mission cities at a total cost of US\$ 1085 million. At the same time, Indian Railways, which carries 7 million people a day, totaling 2.6 billion a year, undertakes regional connectivity with an emphasis on socioeconomic considerations, and the network continues to expand and connect large segments of the Indian population.

38. While moving towards strict vehicle and fuel emission standards, China is heavily investing in mass transit systems. For instance, China's Mid- and Long-Term Railway Network Plan projects having 110,000 km of railways in operation and over 13,000 of high-speed lines by the year 2012. The Chinese high-speed railway network is designed with the view of forming rapid and convenient passenger transport corridors with a large capacity and realizing the separation of passenger traffic from freight transport, with four North-South corridors and four East-West corridors as the backbone.
39. Some of the observations and recommendations that emerged from the country breakout sessions include: (a) the necessity for strict measures to restrain private-car use, including fuel taxes, road pricing, increased parking rates, congestion charges, low emission zone, and reduced subsidies for car-friendly infrastructure; (b) additional revenue generated from the various TDM measures as mentioned above can provide good funding sources for strengthening public transport services, including NMT infrastructure; (c) countries should focus on a more comprehensive approach, in particular, emphasizing 'avoid' and 'shift' strategies rather than 'improve' strategies; (d) efforts should be made to obtain reliable transport data to strengthen baseline information at the local and national levels; and (e) when considering bio-fuel development programmes, careful consideration should be given to overall sustainability, including food security.
40. It is estimated that black carbon is the second or third strongest contributor to global warming after carbon dioxide. Also, considering the fact that the global warming potential (GWP) of black carbon is around 2,000-3,000 times (20 years) bigger than that of CO<sub>2</sub> and that the transport sector is the third largest energy-related source of black carbon in Asia, it was suggested that the reduction of black carbon from the transport sector could result in immediate climate benefits within in a short period. One of the options for Asian countries to consider includes the control of transport-based black carbon emissions in EST strategies.
41. It is also important to note that air quality standards drive technology improvements and market penetration. Emission standards for vehicles are effective, but it takes a relatively long period of time to renew vehicle stock. Fuel quality standards and alternative fuels generate faster effects. Financial and fiscal instruments have little impact on transport volume. Information and public awareness are the keys to success. Mobility management has the highest potential for CO<sub>2</sub> emission reduction; therefore, focus should be on trip avoidance, modal shift to less impacting modes, and increasing load factor.

42. Many countries in the world, including developing and developed countries, are making the effort to introduce low emission vehicles. Rather than there being only one option, there are many different alternatives available based on local circumstances. Toxic emissions can be reduced by better conventional engines, better catalysts and filters, better conventional liquid fuels, gaseous fuels, and electric vehicles. In order to find the best possible option, a comprehensive ‘well-to-wheel’ analysis covering the whole life cycle -- extraction of sources, production, distribution, and consumption -- of different fuels to systematically compare the overall impacts of different types of fuels, would be helpful. Alternative low emission fuels could be subsidized in the market in order to be competitive and to meet consumer demands.

## **VI. Need for EST Performance Indicators**

43. In general, statistics allow different transport stakeholders to understand the trends in transport development, and performance indicators are statistics designed to measure progress towards sustainable transport goals. The economic objectives of sustainable transport may include mobility, accessibility, congestion reduction, roadway cost savings, parking cost savings, consumer savings, energy conservation, economic productivity and development, tax burden, etc. Social objectives may include equity, fairness, affordability, human health, community cohesion, cultural preservation, community livability, public participation, etc. Similarly, environmental objectives may include pollution reduction, climate protection, habitat preservation, aesthetics, etc.
44. In order to measure the progress under these objectives, data quality is of prime concern. It is usually subject to accuracy, transparency, comprehensiveness, frequency, consistency, and availability. The major problem of transport statistics is that they are often incomplete, inaccurate, and based on inadequate methods or sample size, which results in transportation decision making becoming skewed in favour of easy-to-measure impacts at the expense of more-difficult-to-measure impacts. Such incomplete and unreliable transport data needs to be urgently improved since performance indicators based on reliable data are essential for good transport planning and development. Which indicators are used significantly affects how problems are defined and solutions are evaluated. Conventional transport indicators tend to reflect motor vehicle travel conditions and thus support motor vehicle improvement. Sustainability requires a broader indicator set that reflects accessibility rather than mobility, and considers additional modes and impacts. Therefore, establishing universal transport data quality standards is essential for sustainable transport planning.

## **VII. Bus Rapid Transit and Urban and Regional Rail Development to Realize EST Objectives**

45. BRT is one of the cheapest public transport options as compared to metro or railways. However, an obstacle for BRT promotion is that it does not carry the image or perception with officials as much as MRT does. Since it competes with private cars for road space compared to the metro, it has been more difficult to widely promote it regardless of its various advantages against metro, including cost efficiency, flexibility to future change, and much shorter construction period. Despite these bottlenecks, some of the world-class BRT developments in Asia have contributed to drawing the

attention of policymakers and transport authorities as a cost-effective, high quality mass transit option. Supported by strong political leadership, Ahmedabad has successfully implemented the first fully-featured BRT system in India that accommodates 56,000 passengers per day. Bangkok also recently inaugurated its first BRT route, physically well integrated with an existing SkyTrain station. Guangzhou in China has also established a BRT system that has now reached metro-level (or greater) volumes, carrying 800,000 passengers per day (not including transfers, which are free inside BRT stations), more than any of Guangzhou's metro lines. The system currently carries 27,000 passengers per hour in a single direction in the morning rush hour, which is more than every subway line in mainland China other than Line 2 of the Beijing metro. A bike sharing system introduced in June and integrated with the BRT stations currently has 5,000 bikes at more than 100 stations, mostly along the BRT corridor, with more than 300 stations and 15,000 bikes planned to be introduced by the Asian Games this November. Transjakarta in Indonesia is also one of the BRT systems implemented in this region, though it requires further improvements because there is intrusion by other vehicles in the exclusive bus lanes and CNG refueling takes a longer time. Seoul also introduced a successful BRT system that has increased the average corridor speed from 10 kph to 30 kph as well as a 25 per cent reduction in traffic accidents. It was concluded that planning of the BRT system has to be integrated with long-term urban development and land-use policy in order to achieve the desired results. Moreover, fiscal policy interventions to rationalize the tax on buses, a suitable investment framework as well as creation of empowered metropolitan transport authorities is a pre-requisite to successful implementation. Provision of a convenient feeder service, median dedicated lanes and central median stations, and high-quality pedestrian and bicycle infrastructure integrated into the design, among others, are considered important factors that decide the success of a BRT system.

46. A rail-based transport system can play a unique role in meeting many EST objectives. Due to its high capacity and fast mobility, many Asian countries have competitively developed rail-based transport systems. For instance, Bangkok, Thailand, has developed the Bangkok SkyTrain and MRTS to provide high-quality public transport service. India has developed over 64,000 km of railway, providing service for 2.6 billion people per year and expanding the provision of service to rural areas for equity with a wide array of services. The rail service in India is bridging not only distances, but also the divide, providing specially designed services for the poor, women, and workers of the informal sector. Japan is also attempting to induce more and more passengers and goods to switch from road to rail as well as develop new technologies to increase the energy efficiency of railway service. The Republic of Korea is also implementing a 'Road to Rail' policy supported by the new national vision 'Low Carbon, Green Growth' to make rail transport safer, more comfortable, less expensive, and easier to use by investing heavily on railroads with the target of increasing railroad share in SOC investment from 29.3 per cent to 50 per cent by 2020.
47. In the case of China, accompanying its rapid recent development, the length of railways in operation is expected to reach over 110,000 km by 2012. China's high-speed railway network is designed with the view of forming rapid and convenient passenger transport corridors with large capacity. The length of high-speed railways put into operation has reached 6,920 km. Together with the continuous increase in intra-regional trade, these extensive railway networks in the region have accelerated the discussion on connecting regional railway networks across borders. These intermodal transport corridors can be opportunities for the region to put into place efficient intermodal transport, develop

efficient logistics industries, maintain its global economic position, and finally, distribute the benefits of economic prosperity. However, with the recent success of the Guangzhou BRT it is clearly evident that a well-planned comprehensive BRT system can accommodate passenger capacity as large as that of rail services with less capital investment and in a shorter time. Thus, in regards to the development of inner city mass transit service, BRT should be considered as an alternative to rail-based transit where there are constraints in resources.

### **VIII. Social Equity in EST**

48. Transport planning and development need to be driven less by direct economic goals, and more by social activities such as work, education, family needs, etc., based on different transport demands and values of men and women, and diverse socioeconomic households. It is expected that 60 per cent of the people in Asia will live in urban areas by 2030. As urbanization accelerates, there will be more ‘urban poor,’ who are often involved in the informal sector and live in slums. Those urban poor are also largely ‘mobility poor’ and do not have options other than NMT modes such as walking and bicycling. However, while many urban poor depend on NMT modes, NMT is the ‘orphan’ of transport systems, and is often overlooked and considered a peripheral issue rather than core requirement. In most cases, NMT has not been well integrated with public transportation, which has led to the loss of potential passengers. Quality pedestrian facilities such as spacious, safe, and non-interrupted walkways and at-grade crossing are necessary for all people, including children, women, the elderly, and people with disabilities in order to have safe access to public transportation. Increased integration of bicycles are also required such as allowing bicycles on buses and trains, provision of safe and convenient bicycle parking, creating bicycle hubs, and introducing bicycle sharing. Replacing motor vehicle trips with walking or cycling is a win-win in both developed and developing countries. Pedestrians and cyclists should have the right to direct, pleasant, and safe routes in order to achieve high-level social equity in the street space. Furthermore the experiences of different passengers groups such as children, students, women, elderly and persons with disabilities should be surveyed and taken into account in the planning and modernization of urban transport systems.

### **IX. Fuel Economy for National Energy Security**

49. Another challenge facing Asia is the lack of fuel economy standards in many countries. A few countries such as Thailand have proposed fuel economy standards for ASEAN countries. Setting up fuel economy standards can significantly help towards strengthening national energy security. According to a joint report by the UNEP Global Fuel Economy Initiative (GFEI) and CAI-Asia, it is estimated that significant fuel savings can be achieved by establishing common fuel economy standards in the region. For instance, savings from 2012 to 2035 for heavy-duty vehicles (HDVs) and light-duty vehicles (LDVs) with fuel economy standards could be approximately 446 billion liters of diesel and 134 billion liters of gasoline; in other words, US\$318 billion from reduced diesel consumption and US\$98 billion from reduced gasoline consumption. It will also result in a significant reduction of GHG emissions and air pollutants. Current fuel economy policies and

measures do not receive enough attention compared to alternative fuels and emissions management in the government agenda in Asia. Fuel economy must be examined in the context of other fuel-, vehicle-, and energy-related issues. In addition, vehicle manufacturers need to be involved in the policy-making process, and fuel subsidy issues should be addressed in parallel with economic incentives for purchasing more fuel-efficient vehicles.

50. Asian countries can take full benefit of the Global Fuel Economy Initiative, of which the main priorities are: (a) collect, analyze, and communicate data and analysis on the fuel economy, and monitor trends and progress towards a 50 per cent improvement by 2050; (b) promote and support the development of national fuel economy policies that encourage fuel economy improvements over time for vehicles produced and/or sold in-country – this component aims to serve in opening the door to national discussions and planning; (c) technical harmonization of labeling requirements, testing standards and drive cycles, for example; and (d) provide consumers and decision makers with information on options, costs, and available resources to improve fleet performance and reduce emissions through a global database.

## **X. Sustainable Freight Transport**

51. Freight is one of most neglected sectors related to transport. While there are a range of issues associated with the freight sector ranging from safety issues to pollution and other environmental impacts, freight is seldom included in the design and planning of urban transport systems and policy development. Trucks are heavily involved in road accidents. For instance, trucks are involved in 30 per cent of total road accidents even though it accounts for only 5 per cent of the total number of vehicles in India. To improve freight operations, many barriers need to be addressed, including old trucks fleet, poor maintenance, high percentage of empty hauls, and overloading. In Asia, road freight dominates the sector; therefore, diesel consumption by trucks will be the major issue of freight transport fuels in terms of air pollution and GHG emissions. Diesel consumption by trucks is expected to double by 2050 and Asia's share will reach 34 per cent.
52. In order to improve eco-efficiency in the freight sector, policymakers should carry out various measures to reduce the number of trips, reduce freight volume, reduce the environmental impacts of vehicle movement, reduce distances, and change mode of transport. There are many possible ways to improve the sustainability performance of the freight sector. For example, in Japan, truck drivers are encouraged to maintain a strict record of their driving distance and the amount of fuel used, which ultimately help them to review their performance and improve overall efficiency.
53. In order to deal with freight issues, Asian countries can consider several strategies such as the 'avoid' strategy that includes minimizing the need to travel or travel, promoting local production and consumption, co-locating facilities within the supply chain and with ports, improving logistics, managing loads. 'Shift' can include more energy-efficient modes, optimization of railways and inland waterways, and different vehicle types that better match the loads. Similarly, the 'improve' strategy can include measures such as lowering speed, operational and technological improvement, usage of wind power, fuel economy standards, stricter implementation of anti-overloading laws, and

other technological advancements and tools such as radio frequency identification tags (RFID), global positioning systems (GPS), and vehicle routing software.

54. Transport and logistics infrastructure services can enhance physical and economic access. Improved rural access can contribute to achieving the MDGs, reduce food insecurity, and help in disaster management. For example, cost-benefit ratios of rural roads in China could be four times higher than high quality roads. Rural logistics and supply chains can significantly contribute to poverty reduction. For instance, FAO estimates that post-harvest losses of cereal crops range from 10 per cent to 37 per cent of production – 4 per cent to 16 per cent due to transport and logistics deficiencies. Similarly, an IIM (Indian Institute of Management) study in India reports that 50 per cent fresh food and vegetables are wasted on their way to the market. Improved logistics and supply chains can lead to value chain development for rural produce, and thereby contribute to poverty reduction. A number of good examples from countries in the region do exist.
55. Marine transport is another issue in the transport sector which has been relatively neglected due to greater focus on surface transport. Shipping causes various environmental impacts such as SO<sub>2</sub>, PM, NO<sub>x</sub> and CO<sub>2</sub> emissions, ozone-depleting substances, incineration emissions, ballast water charge, antifouling paint, sewage, oily water, and cargo residues. Shipping burns about 370 million tons of low-quality residual fuels with high amounts of sulfur and heavy metals, causing serious air pollution. If global shipping were a country, it would be the fifth largest producer of GHG emissions. Asian countries need to look into appropriate strategies to improve the sustainability of shipping and port sector.

#### **XI. Sustainable Transport Goals for 2010-2020 -- Bangkok 2020 Declaration**

56. With the objective of demonstrating the renewed interest and commitment of Asian countries towards realizing a promising decade (2010-2020) of sustainable actions and measures for achieving safe, secure, affordable, efficient, and people and environmentally friendly transport in rapidly urbanizing Asia, the participating countries of the Forum discussed and agreed on a goodwill declaration -- “Bangkok Declaration for 2020 – Sustainable Transport Goals for 2010-2020” (see Attachment 1). Given that the theme of transport and sustainable development will be debated on by the Commission on Sustainable Development (CSD) in 2011 (CSD-19), participants hoped that the outcome of the Fifth Regional EST Forum would be considered by the Commission as one of the important inputs from the region in regards to the transport sector.

The indicators in Annex 1 of the Bangkok 2020 Declaration provide a guiding framework for countries to measure progress in EST strategy, and countries are at liberty to use any of those indicators as they deem fit.

57. It is expected that the Bangkok 2020 Declaration will provide an important basis for discussing the progress made in EST by countries at subsequent Regional EST Forums, including the Sixth Regional EST Forum to be held in New Delhi in December 2011.

**Field visits:**

58. In order to showcase and demonstrate EST best practices and measures in Thailand, a field trip was jointly organized by the Ministry of Natural Resource and Environment and Ministry of Transport of Thailand and the participants were shown the Bangkok Mass Rapid Transit (MRT) system. Participants gained on-sight experience by riding the newly built MRT system. The Bangkok Metro Public Company Limited (BMCL) introduced in detail the current MRT project as well as MRT Master Plan 2019-2029.

**Attachment 1: Bangkok Declaration for 2020 – Sustainable Transport Goals for 2010-2020**

## **Bangkok Declaration for 2020**

### **– Sustainable Transport Goals for 2010-2020**

We, the participants, who are representatives of Asian countries (Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, People's Republic of China, Indonesia, India, Japan, Republic of Korea, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, the Philippines, Pakistan, Singapore, Sri Lanka, Thailand, and Viet Nam), international organizations, bilateral and multilateral agencies, nongovernmental organizations (NGOs), research organizations, and expert sustainable transport professionals, having met at the Fifth Regional Environmentally Sustainable Transport (EST) Forum in Asia, held in Bangkok, Kingdom of Thailand, from 23 to 25 August 2010, to draft and adopt a declaration, the *Bangkok 2020 Declaration*, in order to demonstrate our renewed interest in, and commitment to, realizing a promising decade (2010-2020) of sustainable actions and measures for achieving safe, secure, quick, reliable, affordable, efficient and people-centric and environment friendly transport in rapidly urbanizing Asia,

**Noting** the identification of transport as a theme under Agenda 21 on sustainable development and the outcome of the high-level meeting of the 9th session of the Commission on Sustainable Development (CSD-9) in 2001 which reached important decisions on transport sector issues concluding that improving transport systems to promote sustainable development, including improving accessibility, can foster economic and social development, help integrate developing countries into the world economy, and contribute to the eradication of poverty,

**Reaffirming and building** upon the *Aichi Statement* agreed upon by the participants at the First Regional EST Forum, held in Nagoya, Aichi Prefecture, Japan, on 1-2 August 2005, and its integrated approach to promoting environmentally sustainable transport will result not only in the improvement of human health through the reduction of urban air pollution, but also the reduction of greenhouse gas (GHG) emissions, deaths and injuries from road accidents, harmful noise levels, and traffic congestion,

**Reaffirming and building** upon the *Seoul Statement*, agreed upon by the participants at the Fourth Regional EST Forum, held in Seoul, Republic of Korea, from 24 to 26 February 2009, that urged the need to address transport issues within the context of the broader environmental aims of Green Growth to encompass the transport-energy-carbon emission nexus, to develop strategies for low-carbon transport that include a shift to energy-efficient and low carbon modes to enhance energy security, and mitigate the effects of transport on climate as well as of climate change on transport services and other socioeconomic sectors,

**Noting** the findings of the 18<sup>th</sup> Session of the Commission on Sustainable Development (CSD-18) held in May 2010, that basic transport infrastructure and services are still lacking or inadequate in many developing countries (both in urban and rural areas), making it difficult for the poor, including women, youth, and children, to access basic services, including those related to health and education, and for workers to have access to jobs, and that in the case of rural areas lack of adequate rural transport infrastructure perpetuates poverty, poses constraints on the marketing of agricultural produce and other income-generating opportunities, and thus hampers efforts to achieve the internationally agreed Millennium Development Goals (MDGs),

**Noting** that transport-related carbon dioxide emissions are projected by international bodies to increase approximately 57 per cent worldwide in the period 2005-2030, whereby the largest part of this increase would come from the increase in private motorized vehicles in Asia,

**Noting** the UN General Assembly Resolution (64/255) of 2 March 2010 on improving global road safety, proclaimed 2011-2020 as a decade of action for road safety, and **deeply concerned** that about half of all road traffic fatalities and injuries occur in the Asian and Pacific region, most of which are related to vulnerable road users such as pedestrians, children, and cyclists, due to streets that lack the necessary safety infrastructure such as exclusive pedestrian and bicycle lanes, safe street crossings, kerb ramps for the disabled, and lack of post-accident care,

**Recognizing** the specific mobility needs of low-income groups, as well as women, children, the elderly, and persons with disabilities which must be addressed to achieve socially-equitable communities and a better quality of life for all,

**Acknowledging** the importance of an EST strategy based upon the concept of Avoiding unnecessary motorised transport - Shifting to more sustainable transport modes and – Improving transport practices and technologies,

We, the participants of the Fifth Regional Environmentally Sustainable Transport (EST) Forum in Asia express our intent to voluntarily develop and realize integrated and sustainable transport policy options, programmes, and projects that will help realize the following EST goals and objectives by the year 2020 in the Asian region (EST 20):

#### I. Strategies to **Avoid unnecessary travel and reduce trip distances**

Goal 1: Formally integrate **land-use and transport planning** processes and related institutional arrangements at the local, regional, and national levels

Goal 2: Achieve **mixed-use development** and medium-to-high densities along key corridors within cities through appropriate land-use policies and provide people-oriented local access, and actively promote transit-oriented development (TOD) when introducing new public transport infrastructure

Goal 3: Institute policies, programmes, and projects supporting **Information and Communications Technologies** (ICT), such as internet access, teleconferencing, and telecommuting, as a means to reduce unneeded travel

#### II. Strategies to **Shift towards more sustainable modes**

Goal 4: Require **Non-Motorized Transport** (NMT) components in transport master plans in all major cities and prioritize transport infrastructure investments to NMT, including wide-scale improvements to pedestrian and bicycle facilities, development of facilities for intermodal connectivity, and adoption of complete street design standards, wherever feasible

Goal 5: Improve **public transport** services including high quality and affordable services on dedicated infrastructure along major arterial corridors in the city and connect with feeder services into residential communities

Goal 6: Reduce the urban transport mode share of private motorized vehicles through **Transportation Demand Management** (TDM) measures, including pricing measures that integrate congestion, safety, and pollution costs, aimed at gradually reducing price distortions that directly or indirectly encourage driving, motorization, and sprawl

Goal 7: Achieve significant shifts to more sustainable modes of **inter-city passenger and goods transport**, including priority for high-quality long distance bus, inland water transport, high-speed rail over car and air passenger travel, and priority for train and barge freight over truck and air freight by building supporting infrastructure such as dry inland ports

### III. Strategies to improve transport practices and technologies

Goal 8: Diversify towards more sustainable **transport fuels and technologies**, including greater market penetration of options such as vehicles operating on electricity generated from renewable sources, hybrid technology, and natural gas

Goal 9: Set progressive, appropriate, and affordable **standards** for fuel quality, fuel efficiency, and tailpipe emissions for all vehicle types, including new and in-use vehicles

Goal 10: Establish effective vehicle testing and compliance regimes, including formal vehicle registration systems and appropriate periodic vehicle **inspection and maintenance** (I/M) requirements, with particular emphasis on commercial vehicles, to enforce progressive emission and safety standards, resulting in older polluting commercial vehicles being gradually phased-out from the vehicle fleet, as well as testing and compliance regimes for vessels

Goal 11: Adopt **Intelligent Transportation Systems** (ITS), such as electronic fare and road user charging systems, transport control centres, and real-time user information, when applicable

Goal 12: Achieve improved **freight transport** efficiency, including road, rail, air, and water, through policies, programmes, and projects that modernize the freight vehicle technology, implement fleet control and management systems, and support better logistics and supply chain management

### IV. Cross-cutting strategies

Goal 13: Adopt a zero-fatality policy with respect to road, rail, and waterway **safety** and implement appropriate speed control, traffic calming strategies, strict driver licensing, motor vehicle registration, insurance requirements, and better post-accident care oriented to significant reductions in accidents and injuries

Goal 14: Promote monitoring of the **health** impacts from transport emissions and noise, especially with regard to incidences of asthma, other pulmonary diseases, and heart disease in major cities, assess the economic impacts of air pollution and noise, and devise mitigation strategies, especially aiding sensitive populations near high traffic concentrations

Goal 15: Establish country-specific, progressive, health-based, cost-effective, and enforceable **air quality and noise** standards, also taking into account the WHO guidelines, and mandate monitoring and reporting in order to reduce the occurrence of days in which pollutant levels of particulate matter, nitrogen oxides, sulphur oxides, carbon monoxide, and ground-level ozone exceed the national standards or zones where noise levels exceed the national standards, especially with regard to environments near high traffic concentrations

Goal 16: Implement sustainable low-carbon transport initiatives to mitigate the causes of **global climate change** and to fortify national **energy security**, and to report the inventory of all greenhouse gases emitted from the transport sector in the National Communication to the UNFCCC

Goal 17: Adopt **social equity** as a planning and design criteria in the development and implementation of transport initiatives, leading to improved quality, safety and security for all and especially for women, universal accessibility of streets and public transport systems for persons with disabilities and elderly, affordability of transport systems for low-income groups, and up-gradation, modernization and integration of intermediate public transport

Goal 18: Encourage innovative **financing** mechanisms for sustainable transport infrastructure and operations through measures, such as parking levies, fuel pricing, time-of-day automated road user charging, and public-private partnerships such as land value capture, including consideration of carbon markets, wherever feasible

Goal 19: Encourage widespread distribution of **information and awareness** on sustainable transport to all levels of government and to the public through outreach, promotional campaigns, timely reporting of monitored indicators, and participatory processes

Goal 20: Develop dedicated and funded **institutions** that address sustainable transport-land use policies and implementation, including research and development on environmentally-sustainable transport, and promote good **governance** through implementation of environmental impact assessments for major transport projects

**Inviting** countries to voluntarily report progress by utilizing the EST Forum -

## Annex 1

### Measuring Progress on the Bangkok Declaration for 2020

*This annex outlines the type of performance indicators that countries may consider in achieving a successful EST strategy. The Bangkok Declaration for 2020 is a voluntary document, and thus countries may opt for developing a number of additional / alternative indicators and measures to monitor progress domestically.*

*The objective of such comprehensive list of indicators is to provide guidelines for objective measurement of the efficiency and effectiveness of the transport system to achieve the desired goals.*

Strategy	Indicator
<b>“Avoid” Strategies</b>	<b>Meta Indicator:</b> Change in vehicle kilometres travel per person over time at the metropolitan and national levels
<b>Integrated Land Use-Transport Planning</b>	Number of cities in the country having formally developed integrated land use-transport plans
	Requirements for local compliance with regional integrated land use-transport plans
<b>Mixed-Use Development</b>	Reduction in average passenger trip length in the city
	Reduction in average freight trip distance regionally and nationally
	Number of units developed in purpose-built mixed-use projects
	Number of public transport projects achieving transit-oriented development (TOD) around stations
	Population and employment per square kilometre along major public transport corridors
	Number of public transport corridors achieving an increase in development and population density
	Amount of increase in property value along corridors of quality public transport projects
<b>Information and Communications Technologies (ICT)</b>	Number of policies developed encouraging ICT as a substitute for travel
	Average broadband speed of internet services
	Penetration of broadband among different income groups
	Penetration rate of mobile telephones in the country
	Increase in the amount of teleconferencing over business travel

	Number of policies and/or programs that promote telecommuting
	Estimated number of trips avoided through telecommuting
<b>“Shift” Strategies</b>	<b>Meta Measure:</b> Mode share of all major transport modes at the metropolitan and national levels, including passenger transport (walking, bicycles, car driver, car passenger, motorcycle driver, motorcycle passenger, motorized three-wheelers, non-motorized three-wheelers, buses, minibuses, and urban rail), inter-city transport (private motorized vehicles, bus, rail, and boat), and freight transport (truck, rail, barge, minivan, and non-motorized)
<b>Non-Motorized Transport</b>	Number of cities with NMT specifically highlighted in the city’s integrated transport master plans
	Note the existence of national and local policies requiring drop curbs at interface between footpaths and intersections
	Note the existence of national and local policies mandating minimum footpath widths, and note the minimum width
	Note the existence of national and local policies mandating dedicated pedestrian signals at major intersections
	Promote the monitoring and measurement of the quality of pedestrian facilities and the number of cities surveyed or audited for a “walkability” score
	Number of cities with dedicated cycleways
	Number of kilometres of cycleways
	Number of secure bicycle parking spaces
	Number of cities with shared bicycle programmes and number of shared bikes per programme
	Number of cities with pedicabs (cycle rickshaw) improvement programmes
	Number of public transport systems with formal integration of pedicabs (cycle rickshaws)
	Number of cities participating in a Car-Free Day programme
<b>Public Transport</b>	Number of cities with trunk bus corridors operating on dedicated busway lanes in the median of the roadway (Bus Rapid Transit)
	Number of kilometres of dedicated, median busways (Bus Rapid Transit)
	Number of cities with bus systems using pre-board fare verification and stations designed for at-level fast boarding
	Number of cities utilizing electronic fare cards on their public transport system

	Number of cities with a fully integrated fare structure across public transport modes
	Number of cities with elevated or underground metro systems (MRT)
	Number of kilometres of MRT
<b>Transportation Demand Management</b>	Number of cities or areas utilising congestion charging
	Number of cities or areas utilizing road tolls
	Number of cities employing a formal parking levy system, in which a parking levy is defined as a set land tax charged to each non-residential parking space, and is assessed regardless of whether or not the parking space is utilized
	Number of cities with active parking management programmes
	Amount of any increase in fuel levies
	Number of cities or regions which have adopted measures to discourage ownership and/or operations of private vehicles
	Amount of vehicle duties or taxes
<b>Inter-City Passenger and Goods Transport</b>	Increase of mode share of high-quality inter-city bus services
	Increase of mode share of inter-city conventional rail services
	Increase of mode share of high-speed inter-city rail services
	Number of kilometres of high-speed inter-city rail
	Number of kilometres of freight rail lines
	Number of inland dry ports
<b>"Improve" Strategies</b>	<b>Meta Measure:</b> Fuel efficiency levels of passenger and freight fleets
<b>Cleaner Fuels and Technologies</b>	Market share of alternative fuels for road transport, including renewably-generated electricity, natural gas, and sustainably managed and cultivated biofuels that do not compete with food crops
	Market share of electric vehicles, hybrid vehicles, and fuel cell vehicles
<b>Standards</b>	Note current fuel quality standards and the time line for attainment of EURO IV (or equivalent) fuel quality standard

	Note current vehicle emission standards for each vehicle class
	Note current fuel economy standards for each vehicle class
<b>Inspection and Maintenance</b>	Note the nature of commercial vehicle testing requirements, including frequency of tests, emission levels required, safety features examined, and number of vehicles retired
	Number of cities that conduct roadway spot checks on vehicle emissions
	Note the type of vehicle insurance mandated by national and local laws
	Number of persons taking driver licensing testing and provision of the pass/fail rate
<b>Intelligent Transportation Systems</b>	Number of public transport vehicles per city with Automatic Vehicle Location tracking technology
	Number of public transport stations and vehicles using real-time information displays
	Number of cities with a control centre to manage traffic incidents and manage public transport fleets
<b>Freight Transport</b>	Quantify improvements in freight vehicle fuel efficiency
	Quantify changes in freight vehicle types
	Quantify network efficiency gains
<b>“Cross-Cutting” Strategies</b>	
<b>Safety</b>	Reductions in number of traffic accidents
	Reductions in number of transport-related injuries and deaths
	Adoption of a zero-accident policy framework
<b>Health</b>	Incidence levels of disease and illnesses related to transport emissions including asthma, other pulmonary diseases, heart disease, stroke, and flu
	Reduction in number of days with restricted outdoor activity due to health concerns of air quality
	Number of cities with policies in place to prohibit smoking in public places, including public transport systems
<b>Air Pollution and Noise</b>	Number of cities with ambient air quality monitoring, including monitors for particulate matter (PM10 and PM2.5, nitrogen oxides (NOx), sulphur oxides (SOx), carbon monoxide (CO), and ground-level ozone, especially with monitors in high traffic areas and ports
	Air quality levels for particulate matter (PM10 and PM2.5), nitrogen

	oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), carbon monoxide (CO), and ground-level ozone for each major city
	Number of days air quality is within local standards and WHO guidelines for all major pollutants in each major city
	Number of cities with formal noise monitoring programme
	Number of cities that spot check noise levels on vehicles
	Number of cities with time-of-day noise restrictions and noise reduction programmes
<b>Climate Change and Energy Security</b>	Note whether the transport sector is included as part of the Nationally Appropriate Mitigation Actions (NAMA), and note the specific transport sub-sectors in the NAMA
	Note the number of transport GEF projects approved for the country
	Amount of oil imported by the country
<b>Social Equity</b>	Amount and type of security measures provided on public transport systems
	Off-peak frequency of public transport systems
	Number of public transport vehicles and stations permitting full universal access for users in wheelchairs and parents with prams
	Number of public transport stations and kilometres of footpaths with tactile paving tiles for the sight impaired
	Number of kilometres of footpaths that have been upgraded to be fully accessible to persons in wheelchairs
	Relative affordability levels of public transport services for low-income groups
	Employment generated from EST projects and availability of related job training opportunities
<b>Finance and Economics</b>	Number of applications for greenhouse gas emission reduction credits
	Total amount of revenues generated from greenhouse gas emission reduction credits
	Total amount of revenues generated from congestion charging schemes
	Total amount of revenues generated from roadway tolls
	Total amount of revenues generated from parking levies
	Number of Public-Private Partnerships (PPPs) implemented

	Total amount of revenues generated from land value capture initiatives
	Number of Benefit-Cost analyses conducted on transport projects, considering, direct, indirect, and cumulative impacts
	Note the results of Benefit-Cost analyses conducted on transport projects
<b>Information and Awareness</b>	Number of EST-related publications
	Number of outreach and promotional efforts on EST
<b>Institutions and Governance</b>	Number of staff at Transport, Environment, and Health Ministries dedicated to EST
	Amount of financial resources of the national government dedicated to EST
	Human and financial resources devoted to EST at the regional and local levels
	Existence of unit at National Government level dedicated to non-motorized transport and number of cities with local government units dedicated to non-motorized transport to promote walking
	Structure and relationship of national, regional, and local actors involved in EST, including engagement with civic and business sectors
	Note environmental impact assessments (EIAs) for evaluating the impact of transport infrastructure initiatives prior to environmental clearance