

Meeting Report

Third Regional Environmentally Sustainable Transport (EST) Forum in Asia

17-19 March 2008
Singapore

Introduction

1. The United Nations Centre for Regional Development (UNCRD), Land Transport Authority (LTA) of the Ministry of Transport of Singapore, National Environment Agency (NEA) of the Ministry of the Environment and Water Resources of Singapore, and the Ministry of the Environment - Government of Japan (MoE-Japan), jointly organized the Third Regional Environmentally Sustainable Transport (EST) Forum on 17-19 March 2008 in Singapore. The Forum was supported by various international organizations such as World Health Organization (WHO), Swedish International Development Agency (Sida), Japan International Cooperation Agency (JICA), Japan Bank for International Cooperation (JBIC), German Technical Cooperation (GTZ), South Asia Cooperative Environment Programme (SACEP), and the ASEAN Working Group on Environmentally Sustainable Cities (AWGESC). The Forum was attended by approximately 120 participants, comprised of governmental representatives from 22 Asian countries (including the members of the Association of South East Asian Nations (ASEAN), Mongolia, China, Republic of Korea and Japan, and for the first time, SACEP member countries from South Asia), international experts, and representatives from various international organizations.

Opening Session

2. Welcoming the participants, Mr. Kazunobu Onogawa, Director of UNCRD, expressed his sincere appreciation to LTA and NEA for their generous support in organizing the 3rd Regional EST Forum in Singapore. Highlighting the shared concerns with regard to various transport related problems in Asia, he underscored the importance of the *Aichi Statement* as a fundamental base for the promotion of EST in Asia and sought the support of eight newly- participating South Asian countries for the *Aichi Statement*. He mentioned that the subsequent adoption of the *Kyoto Declaration* by Asian Mayors, which also endorsed the *Aichi Statement* along with other key recommendations, paved the way to interlink the activities at national level and those at city or municipality level. He appreciated the overall cooperation and support provided by WHO, Sida, GTZ, AWGESC, SACEP, JICA and JBIC in organizing the Forum. He noted that participation of JICA and JBIC together in this Forum was encouraging to see in that it indicated a further harmonized financial and technical contribution of the Government of Japan towards the promotion of EST in developing countries in Asia. Sharing the success story of Transmilenio Bus Rapid Transit System in Bogotá, Colombia, in earning the distinction of being the world's first transport CDM project, he encouraged the Asian countries to explore similar opportunities. Finally, he thanked the Government of Japan for its continued and valuable support in carrying out this Asian EST Initiative.
3. Recognizing the expansion of the Regional EST Forum to the South Asian region and welcoming the new delegation from eight South Asian countries, Mr. Junichi Shiraiishi, Deputy Director General of MoE-Japan, expressed his sincere appreciation to the Government of Singapore for its strong leadership in materializing the "Singapore Declaration on Climate Change, Energy and the Environment" during the East Asian Summit in 2007, which recognized the role of the Regional EST Forum in Asia. Highlighting the important role of the Regional EST Forum and the objectives of the *Aichi Statement* and the *Kyoto Declaration* by Asian Mayors,

Mr. Shiraishi reaffirmed the Government of Japan's commitment to support the Forum to address environment and transport issues in Asia. Mr. Shiraishi outlined Japan's strategy for Clean Asia Initiative (CAI) as well as the promotion of "co-benefit approaches" for synergetic and integrated measures to combat pollution and problems resulting from global warming. Noting the recent remarks made by the Hon. Prime Minister of Japan that the most serious challenge to humankind in the 21st century is climate change and that Japan would contribute to the international community by transforming itself into a "low carbon society", Mr. Shiraishi concluded his opening remarks with an assurance of continued support of MoE-Japan for the Forum and related activities.

4. Extending warm welcome to all the participants, H.E. Mr. Raymond Lim, Minister for Transport and Second Minister for Foreign Affairs of Singapore, mentioned that the Regional Environmentally Sustainable Transport (EST) Forum was a good platform for Government officials and experts to share best practices and experiences on practical as well as innovative approaches towards environmentally sustainable transport strategies. He mentioned that the land transport sector alone contributed 19% of Singapore's CO₂ emissions in 2005. In order to increase mode share for public transport, Singapore is further strengthening its policies and investing heavily to put in place better initiatives and infrastructure. Singapore has established an Inter-Ministerial Committee on Sustainable Development (IMCSD), which is responsible for drawing up a national framework and strategy to achieve a sustainable and high quality living environment, and to develop Singapore as a leading Eco-City. In order to meet the growing travel demand in an efficient and sustainable manner, Singapore will double its Rapid Transit System (RTS) network by 2020. Highlighting the success stories of some of the instruments – the Vehicle Quota System (VQS), Electronic Road Pricing (ERP), and Green Vehicle Rebate (GVR), he mentioned that Singapore was committed to adopting environmentally sustainable practices in the planning and development of transport infrastructure, including infrastructures to facilitate growing interest for cycling. Underscoring Singapore's commitment towards EST and the various thematic areas spelled out in the *Aichi Statement*, the Hon. Minister for Transport concluded by conveying his appreciation to all the organizers and supporters of the Forum.

Plenary Session 1: Asian EST Initiative

5. Introducing the Asian EST Initiative, C.R.C. Mohanty, Environment Programme Coordinator of UNCRD, emphasized the need for an integrated EST strategy and coordinated efforts of key stakeholders at local and national levels addressing the essential elements of EST outlined in the *Aichi Statement*. Outlining the 12 thematic areas of the *Aichi Statement* as an integral part of the strategy, he mentioned that the integrated strategy should advocate a fundamental policy framework in order to effectively integrate health, safety, environmental, social, and gender considerations into transport policy. While underscoring the fact that technology alone cannot deliver the full solution, he emphasized the critical importance of transport demand management (TDM) in the face of rapidly growing vehicle population in Asia. Explaining the objectives of the Regional EST Forum, he mentioned that the Forum provided a platform for inter-agency coordination both at national and international level to address the recommendations made in the *Aichi Statement* and the *Kyoto Declaration*. As the Regional EST Forum uses the *Aichi Statement* as a fundamental basis to provide a platform for policy dialogue, sharing best practices, tools, and technologies, he urged for a common understanding across Asia in this regard, and requested active support of the South Asian countries in implementing the *Aichi Statement*, which was adopted by 14 Asian countries (ASEAN, China, Japan, Korea, and Mongolia) in the First Regional EST Forum in Aichi, Japan in 2005.

Breakout Session: Country EST Initiatives

6. The objective of the breakout sessions was to look into and share country EST initiatives, urban transport master plans, innovative city development strategies, best practices, policies and programs in relation to the

twelve thematic areas of the *Aichi Statement*. The major findings and strategic recommendations emerged from the six breakout sessions are outlined as follows.

Breakout Session 1: Indonesia, Japan, and Sri Lanka

7. Breakout Session 1 involved presentations from Japan, Indonesia, and Sri Lanka. The Undersecretary of the Philippines Department of Transportation and Communications, as Chair, explained the objectives of the session and emphasized the need to identify the gaps in the current policies and the activities planned to address these. Japan, Indonesia and Sri Lanka presented the policies and measures they are adopting in order to address urban air pollution and to reduce CO₂ emissions from the transport sector.
8. The Japanese presentation focused on four major areas, namely, (i) the further strengthening of their NO_x/PM law for motor vehicles, (ii) developing more policy instruments like the promotion and restoration of regional public transportation and adopting further “green” taxes for motor vehicles, (iii) promotion of comprehensive traffic strategies, and (iv) the importance of promoting co-benefits in regional cooperation. They have also identified the importance of including transport logistics as an important topic for future activities.
9. Indonesia highlighted the need for establishing pro-public transportation policies and the need for strategies for comprehensive mobility e.g., mass transit including inland waterways, pedestrian facilities and non-motorized vehicles, and traffic restraint measures using area pricing. Sri Lanka also identified the need to prioritize public transportation and the dream to implement TDM and to improve pedestrian facilities. Sri Lanka also identified the need to prioritize public transportation and planned to implement vehicle emission testing program and fuel quality improvement programs. Sri Lanka is also implementing the “Clean Air Action Plan-2015” and “Strategic Plan of Traffic Management in Greater Colombo area.” With regard to reduction of road traffic, there are 13 over bridges constructed by the Road Development Authority. For improving of rural road network, the Government of Sri Lanka is implementing the “Gama Neguma” (Improvement of Villages) and “Maga Neguma” (Improvement of Roads) programs in 14,250 GS Divisions. Sri Lankan delegates mentioned that under the leadership of His Excellency, the President of Sri Lanka, Mr. Mahinda Rajapakse, the Government had approved a 10 year plan called “Mahinda Chinthanaya” which was in progress for EST.
10. The Expert Members expressed their concerns on linking air quality management to climate change mitigation measures. They highlighted the role of planning and behavioral change and what role it can play in implementing EST. The importance of data on air quality improvement was also cited, as well as the importance of technology and electronics such as in Intelligent Transport System (ITS) and area pricing. Experts also commented that fuel subsidy has to be looked into for the transport sustainability. The importance of expanding the EST works in other cities, especially, in sharing the experience of the Bus Rapid Transit (BRT) like in Jakarta and making sure that the lessons learned were cited. Other important issues raised by the plenary were on marine transport and shipping and what their roles are in making transportation more sustainable.

Breakout Session 2: Thailand, Mongolia, Nepal

11. Thailand’s presentation mainly focused on limited aspects of EST, mainly focusing on vehicle emission control in the country. In Bangkok, the mode share by cars still constitutes 56% followed by bus (35%), and mass transit (4%). For emission standards of gasoline vehicles, Thailand is considering to move from current standard of Euro 3 to Euro 4 by 2012. Similarly for light duty diesel vehicle, the plan is to move from Euro 3 to Euro 4 by 2012. For heavy duty diesel vehicles, Thailand has moved from Euro 2 to Euro 3 by 2007. By 2008, the motor cycle standards will comply with TISI Level 6, which is equivalent of Euro 3 standard.

Achievements of the DIESEL (Developing Integrated Emission Strategies for Existing Land Transport) Project with regard to reduction of diesel pollution in Bangkok, which includes 4 major components – retrofitting vehicles, I/M, alternative fuels, and TDM was reported. The Thai delegation also introduced their Master Plan for Mass Rapid Transit (MRT) as an effort towards modal shift from private car to public transportation system to reduce traffic congestion and air pollution problems.

12. The reported problems in Mongolia were mainly the air pollution in Ulaanbaatar City which has been increasing year after year. The sources of air pollution are mainly the power plants, domestic heating systems, and dust from roads according to the current laboratory analysis in Mongolia during the winter season. With regard to winter air pollution, the traditional housing in Mongolia in the “gher” districts contributes nearly 90% of the emission followed by other sources such as power plants and boilers. Thus Mongolia needs to focus on analysis and monitoring of transportation-related air quality research with the assistance of UNCRD and other developed countries. Mongolia has renewed the “Law on Air” and it is still encountering the challenge of enforcement, in order to control the air pollution. Mongolia requested assistance on capacity building on air quality management and urban planning. His Excellency, the Deputy Minister of Nature and Environment, Mr. D. Delgertsogt, solicited international and regional cooperation to address these problems under the mitigation measures of climate change challenges.
13. The Member of Planning Commission of Nepal, Mr. Ramakanta Gauro, shared the issues and measures in Nepal as per the thematic areas of the *Aichi Statement*. Nepal is planning to connect all 75 district headquarters with a good road network. Mid-hill Highway and Hulaki Sadak will be built parallel to the existing East West Highway. The long-term vision of Nepal is to make the transport system safe, affordable, organized, non-polluting and service-oriented through qualitative increase in vehicle and transport services, there by making a contribution towards the overall development and prosperity of the country. Several issues were reported such as lack of strict enforcement and penalties for violators, noise and accidents due to overloading of vehicles, and lack of proper footways which force many people to dangerously interfere with the vehicles, and lack of institutional coordination among relevant departments/agencies.
14. Following recommendations were made:
 - Thailand should consider developing appropriate measures to facilitate non-motorized mode of transport. Land-use planning should be more effectively considered in transport planning. Pricing structure for public transport should be reexamined as Bangkok faces serious problem from large private car usage.
 - Even though Thai motor cycles’ emission standards are stricter than many other countries, appropriate fiscal instruments such as more effective motor cycle taxes should be considered to address the growing number of motor cycles. As the number of motor cycles is very high, extremely clean motor cycles are absolutely necessary for Thailand.
 - Private sector financing to improve the public transport in Thailand should be considered.
 - Thailand should play a major role in harmonizing emission standards and fuel specifications which would benefit neighboring GMS countries.
 - For Mongolia, cleaner combustion technologies for “ghers” are necessary. Coal fired stoves for heating must be replaced by cleaner stoves.
 - For Nepal, it is very important to introduce stringent vehicle emission standards before enlarging the vehicle fleet.

Breakout Session 3: Afghanistan, Brunei, Bangladesh

15. Breakout Session 3 discussed the trends and developments in Afghanistan, Brunei and Bangladesh. War has affected the environment in Afghanistan and this affects the quality of traffic in the country. As a result, slow/poor traffic condition contributes to pollution. The government is trying to establish their mass transport

system. However, there has been a lack of actual planning for their transportation system. Currently, 50% of Afghanistan's roads are unpaved as the roads damaged during the war have not yet been fully repaired. The Environmental department has been set up less than three years ago and the Urban and Regional Planning department was also set up only 2 years ago. There was international participation to help build up the transportation system in Afghanistan, with particular focus on mass transport system.

16. In Brunei, over the past 3 years, air quality has been in the "Good" range (PSI < 50) for 90% of the time. However, with increasing car ownership levels in Brunei, the country is currently facing a decrease in demand for public transport (buses and taxis). The majority of the road network of Bandar Seri Begawan has been completed based on their previous master plan. More improvements are slated to be made based on their new master plan.
17. Bangladesh is experiencing a 10% annual growth in motorized vehicle. Over the last 4 years, there was a sharp increase in growth for trucks and mini buses. The country is facing a public transport 'crisis' where citizens/commuters are not able to board buses, and roads are faced with congestions and air pollution with inefficient road use. The country is also facing seasonal variation in air quality. Good air quality can generally be experienced during monsoon period, while air quality is generally worse during dry seasons, reaching hazardous levels at times. 55% of the time, air quality exceeds acceptable standards with PM levels taking on a similar seasonal trend. Approximately 98% of the time, the main culprit of air pollution could be attributed to PM2.5. Bangladesh has been successful in banning the use of 2-stroke (engine) 3-wheeler (baby taxis). With the introduction of CNG 3-wheelers, there has been a reduction in PM 10 levels. National Land Transport Policy approved by Government (NLTP) has been in place since 2004. Strategic Transport Plan (STP) for Dhaka City is approved by Government in 2008, to address the issues also identified in EST Forum. The challenge of STP is to integrate non-motorized transport (NMT) particularly rickshaws in urban transport system without banning them from city areas and without making 500,000 rickshaw pullers jobless.
18. The session looked into the possible directions and priority areas which require the countries' immediate intervention. These are:
 - A good way of building the transport system is to leverage international expertise. A regionalized strategy is also important and should be adopted, so that the developments could be more decentralized in Afghanistan.
 - Brunei currently has very developed transportation and city planning. However, more attention should be given to other subtle issues like needs of the low income group, the elderly, the needy and children. There is a need to understand that any strategies to succeed would require a better understanding of the human mind. It is important to make use of the human elements: fear element (through regulation, rules); economic elements (taxes, subsidies for long term effects); moral elements (through environmental education, public awareness programs). Maximum emission standards should be implemented for low sulphur diesel and followed up by the introduction of mass emission regulation standards (at least Euro 2 Standards).
 - The following have been recommended to take on priority for Bangladesh. It could introduce Type Approval for ensuring compliance to new vehicle emission standards. Public-private-partnership (PPP) system should be set up for enhancing effectiveness of in-use vehicle inspection and maintenance. It should also consider accelerating the reduction of sulphur level in diesels and also providing diesel retrofit solutions for old vehicles.
 - Financing the strategies could be the main problem for both Afghanistan and Bangladesh with the main limitations due to financial constraints. However, FDI (foreign direct investment) could be a source of finance for these countries and it is important for them to look for the necessary income needed for transportation development, by making their countries attractive to investors (applicable to both Afghanistan and Bangladesh).

- Gender differences in transport should also be looked into as men and women have different travel patterns. In this context, the Experts explained that generally in transport there were a number of behavioral differences between men and women. The gender differences seen in traffic behavior are often quite obvious. Examples of gender differences in transport - cross cultural differences were shared as follows:
 - Pattern of travelling: women, more often than men, do multi-stop and multi-purpose journeys, and more often with public transport or other means of low budget traveling;
 - Road safety – among young car drivers: men take more risks in traffic. Men have ten times as many severe accidents as women (e.g., in Sweden);
 - Few women drive while drinking;
 - Possible cross culture explanations: the different understandings of the reproductive role and the social roles between men and women;
 - Cultural differences, values and identities, and
 - In general women hold stronger pro-environment and pro safety values.

- The Experts further explained the gender equality as follows:
 - It is when women and men have equal opportunities, access to resources, rights and responsibilities;
 - It means that the rights, responsibilities, and opportunities of individuals will not depend on whether they are born male or female;
 - Equality does not mean “the same as”. It does not mean that women and men will become the same;
 - Equality between women and men has both a quantitative and a qualitative aspect. The quantitative aspect refers to the desire to achieve equitable representation of women and men—increasing balance and parity—while the qualitative aspect refers to achieving equitable influence by establishing development priorities and outcomes for women and men; and
 - Equality involves ensuring that the perceptions, interests, needs, and priorities of women and men (which can be very different because of the differing roles and responsibilities of women and men) will be given equal weight in planning and decision-making. (Source: Sida’s Guidelines for Gender Mainstreaming, 2005)

- Making a reference to long-term planning of the social aspects sustainable urban transport, the *Aichi Statement* and the *Kyoto Declaration*, the Experts further explained the following:
 - Low income families are often deprived of access to resources due to lack of transport facilities that are affordable, reliable, safe, secure and comfortable. Besides, increases in motorized vehicles imply more fatalities and injuries for vulnerable road users such as pedestrians and bicycles as well as for children, elderly and disabled persons. For example, in China there are 90 million disabled persons (official number). Similarly there might be a substantial number of disabled persons in war-torn Afghanistan and amongst the poor in Bangladesh. The construction of safe and comfortable NMT facilities needs to be speeded up in Asian countries due to the dangers of mass motorization; and
 - Sometimes, slow or poor road users, women, children and disabled are exposed to harassments from other wealthier road users. Therefore, long-term planning of socially sustainable transport will have to address improvements of the conditions for marginalized users. In countries with a huge poor population the following needs are identified:
 - A local government body that manages NMT activities in the city (An institutional ‘home’);
 - The transport demand and the activities of the informal sector needs to be highlighted and considered in city planning;
 - Expertise on NMT stressing low income peoples transport needs;
 - Make disabled and women’s transport needs visible;

- Sex disaggregated data required to reveal the diversity of trip patterns between women and men; and
- Gender expertise needed to integrate the transport demands of women in planning.

Breakout Session 4: Philippines, Pakistan, China, Maldives

19. Breakout Session 4 showcased the achievements and plans of China, Maldives, Pakistan, and the Philippines on EST. China's rapid and sustained economic growth has resulted in an exploding demand for mobility. To put this into perspective, Beijing added 700 cars per day on its streets in 2007; and by the end of 2007 a total of 53,600 km of expressways had been constructed in the country. Though the presentation did not include discussion on this in detail, this phenomenon has resulted in air pollution and CO₂ emissions. In order to address these problems and other transportation-related issues, the Chinese government took important steps and in mid March 2008, reorganized the relevant Ministries working on transportation and formed one Ministry to integrate the planning and the implementation of transportation projects. Several relevant research institutes also support the governments' efforts to promote EST. The government's policies focused on integrating urban and rural transport and in prioritizing public transportation. It also strives to improve and support its NMT measures and adjust the time and spatial distribution of its transportation demand. In line with the 2008 Olympics, Beijing will implement measures that will result to over 30% reduction on emissions from the transport sector. The establishment and strengthening of Municipal Comprehensive Transport Management Agencies also plays an important role in EST.
20. The Philippines' report, as presented by the Undersecretary of the Department of Transportation and Communications, showed the government's current policies and plans in promoting EST at the national and local levels. It showcased the experiences of promoting cycling in Marikina City, one of the cities in Metro Manila, and traffic management schemes in Cagayan de Oro City's area. Marikina has invested about 2 million USD in cooperation with the World Bank and GEF and from their own resources to establish a Bikeways office in the City Hall, in awareness raising and promotion of cycling and in constructing about 47 km of bikeways in the city. National government efforts include the harmonization of motor vehicle emissions standards and regulations, the establishment of motor vehicle inspection and maintenance program, the switch to more energy efficient transportation including the use of alternative fuels, and prioritizing public transportation. Its current plans include the institutionalization of EST, public transport network rationalization and development in cities. Challenges remain in ensuring public health improvements, in integrating local governance in EST, and in strengthening the linkage of land-use and transportation planning.
21. In Pakistan, almost the entire urban public transport system is owned and operated by the private sector. There has been a tremendous increase in the number of motorcycles and cars over the past few years. While the government is mainly focusing on its regulatory role, large size CNG buses are being introduced by providing certain incentives to the private sector, besides improving the road infrastructure. The emphasis is on adopting a 'package approach' to address the urban transport problems in a holistic manner with due regard to provision of adequate walking facilities for pedestrians. A system of air pollution monitoring has been recently established in five major cities of Pakistan to ensure that WHO guidelines are adhered to.
22. Maldives, primarily an atoll island system, has a different transportation problem compared to the other countries. Its sea transport plays a major role in the country's development. Urban transportation problems primarily lies with the capital, Male, where promotion of an integrated public transportation system is also needed. Motorcycles currently play a substantial role in transportation.
23. The Chairman of the session highlighted the participation of Chinese society in promoting change and the timely completion of projects as key aspects of its efforts in promoting EST. For the Philippines, the integration of local governance in the promotion of EST was highlighted as an important factor, and in

Pakistan the importance of bringing in high capacity modes for public transportation was noted. The expert members emphasized the importance of including detailed information on health and environment in the presentations and the need to have more integrated EST plans and the expansion of pilot programs. The importance of learning from other country's experience in air quality monitoring and road safety programs, and other EST measures were also cited as important factors in considering national and local plans. The roles and integration of TDM, freight, public transportation and rail were also cited as important factors to consider.

Breakout Session 5: Bhutan, Korea, Myanmar

24. Three presentations were made in Breakout Session 5, reporting country initiatives of Bhutan, Republic of Korea and Myanmar. Bhutan is a small country with 5,000 km of road. Motor car population has grown from under 15,000 in 1997 to almost 35,000 as of December 2007. The Thimphu City Transportation Plan focuses mainly on the construction of urban corridors, the development of different classes of roads, the implementation of a pedestrian pathway system, the improvement of public transport system, and the integration of bus stops with walking areas. They recognized that the rising number of vehicles, growing congestion and related pollution problems, difficulties to promote NMT, and inadequate capacity to enforce standards and regulations are among the major problems they are now facing.
25. The Korea presentation made a note about the issue of global warming and the contribution of the transport sector. A wide range of policy measures for reducing energy use and greenhouse gas emissions have been considered and implemented. Studies show that promoting public transport patronage may sometimes be difficult, but they would bring big improvement; whereas freight model shift measures would bring greater benefits, but that would involve substantial investment in infrastructure. It was also reported in the presentation that the EST Law is now under legislation process. The various provisions under the EST Law would enable Korea to tackle transport emissions in a comprehensive and more effective manner.
26. One of the highlights of Myanmar's presentation was the growth of Yangon City over time. Buses, circular trains and river ferries are the main public transport modes to satisfy transport need, but the growth of the vehicle population is the real issue. In order to achieve environmentally sustainable transport, Myanmar has put efforts in areas like road safety, air quality monitoring, traffic noise management, the use of cleaner fuel, emission control and standards, inspection and maintenance, and public awareness and education campaigns.
27. Expert members made a few comments, which can be consolidated as follows:
 - Increased number of vehicles: this is a common issue faced by Bhutan, Myanmar, and even Korea. People are looking to own a vehicle soon after they have secured their jobs and become better-off. Besides, the manufacturing and export of inexpensive cars in Southeast Asia seems to make it even easier for people to buy their own vehicles. Rising vehicle ownership of course leads to traffic congestion and air pollution.
 - Emission standards and regulations: In Bhutan and Myanmar, it appears that emission standards and regulations are already in place. The key issues would be (i) to make sure that those standards and regulations are up-to-date, and (ii) to enforce the standards and regulations. It is also important to set up yardsticks as a way to evaluate the effectiveness of environmental policies and measures. This is where air quality monitoring should kick in.
 - Air quality monitoring: Each city has its own air quality problem, and it is through air monitoring, air quality data collection and analyses where government agencies can correctly identify major source(s) of pollution, and then to come up with the best solutions. However, roadside air monitoring initiative did not feature prominently in the three presentations. It is advised that air monitoring work should be continued and be further enhanced.
 - Urban planning: The importance of integrated land use and transport planning has been brought up during discussions. It is recognized that the respective city plans of Thimphu and Yangon should be used as an

opportunity to manage and reduce transport demand. In this respect, government agencies should consider a planning approach that would reduce traveling distance while not reducing mobility.

- Marine emissions: Marine emission has been mentioned in the Korea presentation. It is often a neglected issue, but the impact of emissions coming from port activities on local residents has become a growing concern, especially where port areas are located right next to urban settlements. This is an issue that requires regional and international co-operation.

Breakout Session 6: Singapore, India, Malaysia

28. Breakout Session 6 included presentations from India, Singapore, and Malaysia. MoT/LTA plans the long term transport needs of Singapore, taking care of those who drive as well as those who use public transport. Singapore has launched Land Transport Review 2008, National Energy Policy, and National Climate Change Strategy and formed Interministerial Committee on Sustainable Development. The overall EST strategy of Singapore includes – making public transport the choice mode, meeting diverse needs under EST, and managing road usage. In order to make public transport the choice mode, Singapore is integrating transport facilities with building developments and materializing integrated transport hubs to provide seamless transfer. The short term and long term plans to promote public transport and seamless transfer include – real time bus arrival information panels at another 20 bus stops (2008), integrated real time bus arrival information via SMS at 50 bus stops (July 2008), integrated real time bus arrival information at bus stops island-wide via mobile phones (Mar 2010) and Integrated Multimodal Travel Information System (longer term). With regard to managing road usage, Singapore is further enhancing effectiveness of the Vehicle Quota System (VQS) and Electronic Road Pricing (ERP). With regard to ERP, Singapore is refining measurement of traffic speeds, revising ERP rate structure, and managing congestion in city area. Singapore also introduced its short and long term plan on people-friendly urban transport, social equity, public health, traffic noise management, and NMT.
29. The three Ministries from India jointly introduced different issues and their short and long term vision and action plan on sustainable urban transport. The cost of travel has increased in India. The use of cheaper non-motorized modes like cycling and walking have become extremely risky, since these modes have to share the same road space with the vehicles. Travel in the cities has become more risky with accident numbers having increased more than twofold from 0.16 million in 1981 to over 0.39 million in 2001. Problems associated with rapid expansion and development in Indian cities were reported with various other problems such as vehicular pollution, public health, and fuel quality etc. The delegation introduced India's Five Year Plans along with National Urban Transport Policy. In this regard, the Government of India has launched Jawaharlal Nehru National Urban Renewable Mission (JNNURM) which seeks significant improvements in urban infrastructures and reforms to be taken up by Urban Local Bodies. The Government of India is also taking a number of steps with regard to strict fitness regime for the in-use vehicles, harmonization of vehicle regulations, emission norms, control of pollution from in-use vehicles, evolving a Bus Body Code for construction of bus bodies etc., to ensure road discipline and road safety.
30. Introducing the Ninth Malaysia Plan (2006-2010), the Malaysia representative mentioned that measures would be implemented to improve multimodal public transport, particularly in urban centres, to reduce traffic congestion and air pollution. Under the Ninth Plan, a new Clean Air Action Plan would be developed and implemented to improve air quality and the strategies would include reducing emission from motorcycles. Malaysia is working towards strengthening vehicle emission standards and currently working to move forward to Euro 2 for diesel vehicles and Euro 3 for petrol vehicles. Various initiatives with regard to public transportation such as – LRT and Monorail in Kuala Lumpur, intercity commuters, integrated rail and bus system in the Klang Valley, etc., were introduced. Introduction of congestion charges is also being proposed in Kuala Lumpur. A roadmap to reduce fatality of 4 deaths per 10,000 vehicles in 2005 to 2 deaths per 10,000 by 2010 has been implemented.

31. Following recommendations were made by the expert group members:

- Singapore can aim for more stringent emission standards and have more control over diesel, for example, through the implementation of Euro 5 standards and retrofit diesel vehicles with diesel filters. Singapore has been monitoring traffic noise level and so far the levels are below international standards. Singapore should consider surveying travel demand of women, children, elderly and others belonging to the low income groups. Such study should be done by a gender expert. Sex disaggregated statistical information is required so as to integrate the women's demand for transport in planning.
- In the case of India, many initiatives have been implemented to support the low income group. However, there is a need to speed up facilities for safe pedestrian and cycling lanes and to upgrade them into part of the holistic urban transport planning. Other than the commendable efforts to introduce CNG in Indian cities, an important area to focus on should be the establishment of an effective and centralized vehicle inspection program.
- With the introduction of cheaper cars (e.g., NANO cars by TATA motors), India faces a tough challenge with regard to the impact of usage of private cars. India should consider more effective measures and policies in the areas of TDM and modal shift.
- The current standard in Malaysia is Euro 1 for diesel and Euro 2 for petrol. Malaysia should expedite the adoption of Euro 3 standard for both diesel and petrol. Malaysia also should establish a timeline for the realization of a Euro standard. Enforcement of a smoke opacity standard for in-use vehicles would help to address emissions, especially PM levels. There should also be some strategy and goals catered towards groups that are transport disadvantaged.

Luncheon Session: Travel Demand Management for EST

32. With an objective to introduce various TDM policies and measures, including fiscal instruments, a luncheon session on "TDM for EST" was organized by GTZ/SUTP, Institute for Transportation and Development Policy (ITDP) and Environmental Defense (ED). Starting with a video presentation on Stockholm's congestion pricing, the session introduced cases of successful implementation of congestion charging and road pricing drawing lessons from different parts of the world such as –ERP in Singapore, Swiss and Austrian truck tolls, London's congestion charge, Oslo's cordon road charging system, Stockholm congestion charge, German truck troling and high occupancy toll rings and high occupancy toll (HOT) lanes in US cities. Speaking on the occasion, Michael Replogle of Environmental Defense and ITDP mentioned that road pricing and congestion pricing was spreading all over the world. High political and technical leadership is required to introduce such congestion pricing schemes for which capital investment should not be a concern as their revenue generating potential is usually high. Congestion pricing for high performance networks in Stockholm has resulted one fourth reduction in traffic volume, 30-50% reduction in queue times, and 14% reduction in emission earning 67% approval by public after 9 months of operation. The key message that emerged from the session was that the decision makers and planners must manage the transport demand, not just only the supply relying on end-of-pipe solutions. Learning from the European experiences, the following points were recommended:

- cost-effectiveness and public acceptance, not technical feasibility, are the key issues for road charging;
- decision to implement road charging is driven by the perceived;
- urgency of congestion, financing, environmental problems the system is designed to address;
- absolutely critical to success: clarity of policy objectives for introducing charging and complete and unambiguous specification of functions the contracting authority requires of the system;
- advice on system specification and procurement should be sought from experts and officials who have worked on existing charging systems internationally; and
- procurement requires a major effort by contracting authority.

33. Mr. Manfred Breithaupt of GTZ also introduced in details various TDM measures and policies with examples from different cities in Germany and the world. The luncheon session was concluded with the brief announcement on the World Cities Summit (WCS)-2008 and BAQ-2008 by Mr. Shanmuga Retnam, Project Director of WCS and Mr. Cornie Huizenga, Chief Executive Director of CAI-Asia.

Plenary Session 2: National EST Strategy by Cambodia, Laos, and Viet Nam

34. C.R.C. Mohanty of UNCRD introduced the aim and objectives of the national EST strategy and their formulation process. He mentioned that the participatory and consultation process at the national level is key to ensure country ownership of the strategies. He mentioned that upon official endorsement of the strategies by respective countries, there would be a donors' coordination meeting in each country to discuss implementation of the strategies. The representatives from Cambodia, Laos, and Viet Nam introduced their First Draft National EST Strategies. The presentation consisted of information on national planning and action with the timetables ranging from 5 years to long term. From the presentations, it was observed that all three countries had addressed the key EST elements as recognized by the *Aichi Statement*— public health, land use planning, environment and people-friendly urban infrastructure, public transport planning and TDM, NMT, social equity and gender perspective, road safety and maintenance, strengthening road side air quality monitoring and assessment, traffic noise management, cleaner fuel, vehicle emission control, standards, inspection and maintenance (I/M), and strengthening knowledge base, awareness and public participation.
35. Sharing the country situation, the Lao representative mentioned that only 25% of the vehicles were inspected in Laos in 2006. The Department of Public Works and Transport issued regulation on Technical Standard of Vehicle Inspection Center in Vientiane (TSVIC-VTC) in November 2000. Cambodian delegation highlighted the issues such as – limited number of vehicle inspection and maintenance stations and facilities, weak enforcement of newly adopted land traffic law dissemination, and increase in road accidents, etc. In Viet Nam, the pollution has increased due to large numbers of motorcycles, currently 20 million motorbikes as compared to 600,000 automobiles. Viet Nam faces a number of other issues such as – increase in road accidents (casualty rate of 35-40 people per day), poor transport infrastructure, lack of public awareness on vehicle I/M and road safety, and social equity, etc.
36. In the First Draft National EST Strategy, while Cambodia and Laos introduced their short and long term measures and goals, Viet Nam provided more quantifiable goals to be achieved in different timeframes within 2020 such as – reduction of CO₂ by 30%, compared to 2005, reduction of PM10 by 80% (compared to 2005) for Ho Chi Minh City and Hanoi city, reduction of 50% SO₂, NO_x, VOC (compared to 2005) in Hanoi and Ho Chi Minh City, roadmap for Euro 2 in 2007, Euro 3 in 2009, and Euro 4 in 2012, reducing 20% of the noise volume from transport in urban areas to 65dB compared to 2005 by 2020, research and application of technological measures to minimize emission from motorized transport and save fuel, by 2020, and research and application of measures to reduce traffic noise by 2015. The First Draft EST Strategy will need to be improved through further consultation and the Final Draft is expected to be completed by the end of 2008.
37. Following recommendations were made by the floor:
- The countries should consider appropriate financial mechanism for the materialization of the National EST Strategies. These could include – taxation revenues, user charges and other economic instruments instead of solely relying on the external support, foreign direct investments, ODA, etc.
 - Important role of urban planning and land-use planning should be considered in pollution and noise control.
 - The governments should undertake efficient negotiation with private sectors to take benefit from PPP.
 - Governments should take into account regional approach to harmonize vehicle emission standards, fuel specifications, etc., as well as to deal with import and export of vehicles, as a result one country would

benefit from the strength of another country. Also there is a need to involve the vehicle manufacturers and oil industries.

- Capacity building measures for bus business operations should be considered.
- Regional EST Forum should prioritize the areas where developing countries need capacity building and technical assistance.
- In order to manage the transport demand, BRT should be the best answer before MRT comes.
- South Asian countries should take initiative in developing the National EST Strategies.
- The countries need to ensure a linkage between the process of developing the National EST Strategies and the process of PRSP (Poverty Reduction Strategy Paper) for donor consultation and coordination.

Concluding the session, Ms. Liana Bratasida, Chairman of ASEAN Working Group on Environmentally Sustainable Cities (AWGESC), recommended the National EST Strategies should address more directly the climate change issues.

Plenary Session 3 and 4: Reporting by Six Breakout Groups

38. These two plenary sessions were dedicated to summarize all the findings of the six breakout sessions and to come up with strategic recommendations and clear directions for the countries to consider in their transport planning and development in the next 10-15 years:

Policy gaps:

- Lack of appropriate finance mechanism for EST strategies – construction and operation of public transport – self-finance, user pay, BOT;
- Fuel subsidy and promotion of public transport is not in harmony – could fuel subsidies be better used to develop EST solutions;
- Land-use planning and transport planning must be integrated;
- Better coordination of different modes of transport – rail, bus, car, NMT and pedestrians; and
- Also better integration/coordination policy within mode (bus – public and private) – allow better management of emission standards.

Institutional gaps:

- EST coordination amongst departments in charge of different areas is still weak or non-existent – suggest EST forum as a starting point; and
- Enforcement is major concern.

Policy instruments, tools and technologies:

- Tax rate reduction to promote low-emission vehicles;
- CNG, LPG, LNG, biodiesel (renewables in general), hybrid vehicles; and
- Must also consider life-cycle analysis on carbon, fuel / food question related to biodiesel.

Possible direction on where they should be heading to in the next 10-15 years:

- Develop regional framework on emission standards, fuel quality, transition to renewable fuel, involving if possible, the vehicle manufacturers and fuel industries;
- Co-benefits need to be highlighted and incorporated into transport policies; and
- Motorcycle – not enough attention – how TDM helps with motorcycle usage – recommend countries to look at developing world standards for motorcycles.

Best practice and priority EST areas that need immediate attention/policy interventions:

- Strategy to action – specific targets and schedules;
- Capability building – developed countries to help others building EST capacity;

- Capacity development needs to be comprehensive. But it is a continuous process. Each country needs to identify entry points;
- Improvement in diesel fuel quality to be achieved – 500 ppm sulphur max at least, preferably 50 ppm, which would enable the use of particulate filters;
- Enhancing of monitoring data with proper QC/QA so that informed decisions could be taken up;
- Better analysis of data (source apportionment studies) to define the problem;
- TDM is key to achieve EST – policy makers must manage the transport demand, not only just the supply relying on end-of-pipe solutions;
- Planning of rural transport – inclusion of NMT in planning now – not wait until problem develops;
- Also need to look at in-use vehicles – maintenance is key to emission reduction and road safety;
- Further strengthening regulation for air pollution in metropolitan areas;
- Reduce unnecessary journeys (decentralization of utility / telecommunication);
- Road safety is a must; and
- Long-term planning of the social dimension of sustainable urban transport. Long-term planning of socially sustainable transport will have to address improvements of the conditions for transport-disadvantaged groups. Studies of travel conditions and ways to reduce road vulnerabilities and discomfort are required. Attention to direct and indirect costs should be paid and a basis should be formed for the design of a socially inclusive transport system.

Plenary Session 5: Climate Change, EST and Co-benefits

39. In this session, MoE-Japan introduced Japanese experience and initiatives on promoting co-benefits approach to address climate change issues. JICA and JBIC introduced co-benefits approach to mitigation in transport sector followed by related experiences from Singapore, UN ESCAP, and CAI-Asia.

- Mr. Kotaro Kawamata of MoE-Japan drew the Forum’s attention to Japanese government initiatives in promoting co-benefits approach in addressing climate change. The co-benefits approach takes into consideration the development needs and greenhouse gas reduction, which appeals to most developing countries which are driving for the nations’ development. Good practice of BRT Bogotá in Colombia by Clean Development Mechanism (CDM) shows that the co-benefits approach is bringing emission benefits. Through the Cool Earth 50 initiatives, its accompanying strategies and financial mechanism, as well as MoE’s participation in the ODA projects’ decision-making process, Japan is looking to strengthen its partnership with developing countries, and to support more co-benefit projects in the near future. The launch of Asia-Pacific gateway for co-benefits approach was announced. Vision of a low carbon society was also shown in relation to EST.
- Mr. Masato Kawanishi of JICA introduced in his presentation the Japanese ODA policies and initiatives, and its efforts to engage developing countries into mitigation actions in light of climate change. There are a number of ODA activities which produce both developmental and climate benefits-‘co-benefits’. Case study from Ho Chi Minh Metropolitan Area has been used as an example to show how climate change benefits have been addressed. He highlighted the importance of the co-benefits approach, and the needs for quantification of co-benefits to ensure mitigation actions are in a measurable, reportable and verifiable manner.
- The presentation made by Mr. Uchida Tsutomu of JBIC highlighted the need to reduce greenhouse gas emissions from the transport sector, and one of the ways to do that is through urban railway development which generates less CO₂ emissions. He also illustrated by examples in India, Thailand and Viet Nam where the level of co-benefits derived from railway projects, with respective CO₂ reduction rates reached 40% in one project.
- Mr. Bashir Ahmad of the National Environment Agency, Singapore, then shared with the Forum Singapore’s experience in achieving EST and in tackling climate change. Under the National Climate Change Strategy, Singapore pledges to continue seeking sustainable solutions to reduce CO₂ contribution

from the transport sector, mainly through improvement in energy efficiency by (i) managing vehicle use and traffic congestion; (ii) improving and promoting the use of public transport; (iii) improving fuel economy; (iv) promoting green vehicles, like electric vehicles, CNG vehicles, and hybrid vehicles; and (v) promoting fuel-efficient driving habits.

- The UN ESCAP presentation made by Mr. Lorenzo Santucci reminded the Forum members of their roles in supporting the achievement of the Millennium Development Goals, the promotion of “Green Growth”, and their focus on co-benefits. Given the rapid and tremendous economic growth, as well as the limited ecological carrying capacity in the Asia-Pacific region, there is a real need to push for “Green Growth” and sustainable infrastructure development. Kitakyushu Initiative (KI) adopted in Japan in 2000 is one example of how local environmental initiatives can be promoted to enhance the urban environment. The climate change components have been strengthened through the second cycle of the KI (2006-2010), in which the co-benefits approach has been emphasized.
- Mr. Bert Fabian of CAI-Asia Center made a presentation on carbon financing in Asia in achieving sustainable urban transport (SUT) and air quality management (AQM). After taking the Forum to the latest trends of CO₂ emissions from transport, and by showing a few examples of CDM and BRT projects, the presenter then further explained how carbon financing can help reduce greenhouse gas emissions from the transport sector in Asia. The key questions related to carbon financing one must ask include “does it encourage policy change? Does it have an in-built mechanism for scaling-up?” Concerted effort is required among different stakeholders to make SUT financing works.
- Finally, the following points were raised during the open discussion period:
 - Co-benefits needed to be sharpened to focus on socioeconomic benefits; not just environmental – recall that the SD concept is a balance of three areas – social, economic and environmental. (example – biofuel and its impact on food price, etc.).
 - With regard to climate impacts from transport, we need to measure the impact. However, we know very little about what was happening in cities in the past as reliable data is not available. Also we need to consider how to master CO₂ calculation and we need to develop a new methodology, tools and capacity to calculate CO₂. Current methods may be too simplistic.

Plenary Session 6: Future EST Activities

40. The session was chaired by SACEP Director General, Dr. Arvind Anil Boaz. C.R.C. Mohanty of UNCRD introduced the future plan and activities under the Asian EST Initiative. Future activities will make necessary efforts to generate required political will to mainstream EST considerations, mainly the elements of the *Aichi Statement* and the *Kyoto Declaration*, in the over all transport planning and developments in Asian countries. The future process will continue to seek active participation of 22 countries from South and South East Asia as well as international organizations, partners, donors, to address following areas:

- sharing best practices, policy instruments, technologies among countries;
- strengthening mutual cooperation among the sub-regional groups (ASEAN, South Asia, North East Asia) in building each other’s capacity and in materializing harmonized approach and common understanding to address EST elements underlined in the *Aichi Statement*; and
- strengthening interagency coordination at local and national level to effectively address the environment and transport issues in an integrated way;

Specific activities and plan includes:

- National EST Strategies: With regard to national EST strategies, it was agreed that the Philippines and Indonesia would be covered under the second phase. The Philippines National EST Strategy would be developed through a joint collaboration between UNCRD, CAI-Asia/SUMA (Sida funded), Department of Transport and Communication (DOTC), and Department of Environment and Natural Resources (DENR)-the

Philippines. In this regard, a Letter of Agreement (LOA) between CAI-Asia and the Philippines counterpart was signed immediately after the Closing Session of the Forum.

- In-country EST Training and policy dialogue workshops: Selected countries in South and South East Asia to further mainstream EST in the transport planning and development process.
- 4th Regional EST Forum: The representatives of Ministry of Land, Transport and Maritime Affairs of Republic of Korea announced their interest to host the 4th Regional EST Forum in Korea. They emphasized that the 4th EST Forum in Korea would provide very meaningful opportunities to enhance awareness on the environment and sustainable transportation. All countries welcomed the proposal from the Government of Korea.
- City EST Forums: In order to mainstream EST concepts and objectives as underlined in the *Aichi Statement* and the *Kyoto Declaration*, UNCRD would continue to encourage the countries, including city level authorities, to develop such City EST Forums so that local EST priorities and issues are properly discussed and addressed through participation of relevant local authorities.
- Asia Car Free Day (ACFD): With the help of national focal points of the Regional EST Forum and under the aegis of the *Kyoto Declaration*, this activity will be pursued on a voluntary basis in Asian cities to help raise awareness of the civil society and key stakeholders on the importance of non-motorized modes of transport and its contribution to reduction of GHG emissions as well as other social benefits. In this regard, UNCRD proposed the participating countries to come up with an appropriate concept for design of the logo for ACFD. UNCRD proposed that the Asian cities could observe the ACFD under a common platform which could be symbolized by a logo endorsed by all participating countries of the Regional EST Forum, may be during 4th EST Forum in Korea. Participating countries were requested to contribute in the development of the logo. Countries could consider developing the concept design of the logo by conducting competitions in schools and colleges and submit to UNCRD for further consultation.

41. The Expert Member of the Regional EST Forum, Mr. Cornie Huizenga, presented an overview of various sustainable urban transport related programs and activities in Asia and the potential synergies among them. The main objective of this presentation was to share with participating countries these programs and activities so that they can take benefits in building their capacity through various technical assistances. Knowledge management, capacity building, policy development, and financing/investments and implementation are important areas to materialize sustainable urban transport. With regard to financing sustainable transport, various international mechanisms are available such as – carbon financing, carbon funds, GEF, CDM, ODA, technical assistances (TA) in addition to public and private financing within a country. Sharing potential synergies among various initiatives in sustainable transport areas, he recommended to develop improved coordination and cooperation among international NGOs and foundations, Multi- and bi-laterals, the UN agencies and Asian stakeholders working with Asian cities on EST and to follow a 3 step approach – (a) each continue to work on their own without significant coordination but exchange more info, (b) maintain individual focus and locations where they work in Asia but improve coordination and cooperation to increase synergy and impact, (c) develop integrated programs and combine fundraising activities to streamline and combine activities with common interest and objectives.
42. Concluding the session, Director General of SACEP, which is the only intergovernmental body on the environment in South Asia, welcomed SACEP's member countries for their first time participation in the Regional EST Forum. He mentioned that the *Aichi Statement* provided a unique understanding on various elements of EST and all the activities and process behind the Asian EST Initiative were driven by the *Aichi Statement*. Underscoring the fact that the *Aichi Statement* provides a basic/fundamental platform through the EST Forum for policy dialogue and sharing best practices, knowledge, technology, and tools concerning various aspects of EST, it is very essential to have a common understanding across Asia on the *Aichi Statement*. He sincerely requested all South Asian countries to join ASEAN and Northeast Asian countries (China, Korea, Mongolia, Japan) to fully support the *Aichi Statement* as well as join actively in the future activities under Asian EST Initiative and Regional EST Forum. He proposed to launch a SACEP South Asia Expert Group on EST with support of member countries, UNCRD and other donors. He requested UNCRD to

extend its help to formulate National EST Strategies and Action Plan for some countries in South Asia. He also suggested development of a program for specific awareness-raising on EST in Asia. He called upon the automobile industry to actively support the EST initiatives in Asia. He thanked the Hon. Minister of Urban Development, Government of Sri Lanka, Mr. Rohana Dissanayake for proposing to launch a “Car Free Day” in Sri Lanka. He also congratulated the Government of Maldives for conducting the “Car Free Day” in Maldives and requested them to conduct this in future as part of the EST initiative in South Asia.

43. **Major Conclusion and Recommendations:**

- Institutional structures on (urban) transport are beginning to move in Asia, however there are no clear models of what works well and what does not. Strong institutional structures and capacity are important and should serve as the backbone for EST promotion. The Regional EST forum should take up the topic of institutional issues or mechanisms on EST.
- A national EST strategy that is formally approved by the national government and other stakeholders are important in order to contribute to making certain that the EST strategy and action plan will be implemented. In some cases, like what is being planned in Korea, the development of a law on EST is being considered in order to institutionalize EST in the development of Korean cities.
- The EST forum should encourage countries to develop a comprehensive capacity development program in support of EST at the regional, national, and local levels.
- There is an emergence of policies with emphasis on public transportation and EST in several Asian countries, however, the remaining challenge is the financing for construction and operation of public transport. The importance of NMT and universal access for mobility or transportation for disadvantaged persons were highlighted and more activities should be undertaken by countries in support of this.
- The integration of land-use planning is required in long-term EST strategies as well as TDM, including parking policies.
- In-use vehicle emission management is very important. This requires appropriate regulations test procedures and a sound implementation system. Lessons can be learned from other Asian EST models.
- Greater emphasis needs to be given to limiting emissions from motorcycles. Countries that do not have emission regulations may consider adopting the “World Motorcycle Test Cycle” developed by the United Nations Economic Commission for Europe (UNECE) and the emission standards that are being developed.
- Need for concrete actions cannot be overemphasized. This requires necessary training for capacity-building of implementer of EST at national level. Also strong political will is required.
- Climate change as a policy driver is emerging but not yet on a par with air quality or congestion at the national level. Integration of EST and climate change issues in national education programs of participating countries is required.
- For future EST forums, grouping of countries for the breakout sessions based on local circumstances, level of development and kind of problems was recommended to ensure more rational discussions. Continuation of consensus building process at the regional level and learning from the experience of the others are important.
- Countries that do not have emission regulations should adopt progressively stringent mass emission standards (at least Euro 2 or Euro 3) and corresponding quality of gasoline and diesel fuels.
- A regional approach should be actively considered by the countries in order to harmonize vehicle emission standards, fuel specifications, fuel economy standards and vehicle safety standards, etc., as well as to harmonize Type Approval systems to deal with import and export of vehicles. This regional mechanism would help one country to benefit from other countries’ strength and experience. There is a need to involve the vehicle manufacturers and fuel industries in the process.
- Hon. Minister of Urban Development, Mr. Rohana Dissanayake and Member of Council, Matale, Sri Lanka, R.M. Zafarullah announced the implementation a Car Free Day in Sri Lanka. This issue will be followed up with the Sri Lankan Government.

- Walking was recognized as a pedestrian's basic human right. Creation of facilities towards that end should receive due attention.
- For successful implementation of EST Strategy, awareness raising campaign is very important.
- Endorsing the *Aichi Statement*, Hon. Member, Physical Infrastructure, Planning Commission of Bangladesh, Mr. A.M.M. Nasir Uddin congratulated all the organizers of EST Forum.
- Hon. Minister of Urban Development, Sri Lanka, Mr. Rohana Dissanayake strongly supported and endorsed the *Aichi Statement* for the promotion of EST in Sri Lanka.
- Afghanistan delegate, Advisor of Regional Planning, Ministry of Urban Development, Mr. Abdul Khaliq Nemat underscored his full support to the Forum and its objectives on behalf of his Ministry.

All South Asian countries confirmed their full support to the principles and objectives of the *Aichi Statement*.

Closing Session

44. Underscoring the strong interests of the participants for the modality to implement the developed ideas and strategies during the Forum, Mr. Kazunobu Onogawa, Director of UNCRD, once again conveyed his sincere appreciation to all the participants, Expert Members, supporting organizations, representatives from international organizations and donor agencies. Referring to the presence of donor agencies, he expressed hope that possible collaboration with them in EST areas, including climate change and co-benefits, would benefit the participating countries. He further welcomed the offer of the Korean delegation to host the 4th Regional EST Forum in Korea in early 2009. He mentioned that the suggestions and advices received in Singapore Forum would be well considered through the preparation process for the 4th Forum. With recognition of various initiatives of Singapore Government in environment and transport sector, he finally appreciated all the support and cooperation provided by NEA and LTA for successfully organizing the 3rd Regional EST Forum.

Delivering the closing address on behalf of the Government of Japan, Mr. Keiji Fukumoto of the Ministry of Land, Infrastructure, Transport and Tourism of Japan expressed hope that the Regional EST Forum would continue to play an important role in the future, where policy makers in the transport and environment sectors in Asian countries could share information, exchange views and implement National EST Strategies. Noting the expansion of the Regional EST Forum to cover South Asian countries and the leadership of UNCRD, he assured that Japan would continue to put its efforts to further strengthen the cooperation with Asian countries toward the realization of EST in the region by utilizing and learning from Japanese experiences and best practices. One of such example he shared was that CO₂ emission from the transport sector in Japan has been on a downward trend since 2001, mainly through strengthening of fuel efficiency standards of motor vehicles.

Making the final closing remarks on behalf of the local co-organizers, Mr. Mohinder Singh, Dean, LTA Academy, Land Transport Authority of Singapore, expressed his special thanks for UNCRD and MoE-Japan. He mentioned that the forum was especially timely for Singapore, as LTA had just completed the Land Transport Review for sustainable land transport development into the future, and together with the publication of the National Energy Policy Report, National Climate Change Strategy Report, LTA was strived to adopt a holistic and long term approach on EST in Singapore. Underscoring the importance on NMT such as cycling and walking through provision of appropriate facilities and enhance road safety through raising awareness and improving safety feature of our roads, he mentioned that Singapore's transport system was committed to ensure full accessibility to cater to the needs of the elderly, physically challenged and family with young children, and with that in mind, Singapore would embark on international best practices, such as implementing barrier-free routes within vicinity of all train stations by 2010, among other measures. Noting the fact that climate change issue has received much attention in the recent years, he shared Singapore's commitment to continue with appropriate mitigation measures by achieving improvements in the energy consumption in the transport sector.

Field visits:

45. On the third and final day of the Forum (19 March 2008), a field trip was jointly organized by LTA and NEA to show the participants the best practices and measures taken up by Singapore for the promotion of EST. In order to share and experience Integrated Transport System (ITS), delegates were driven through the gantries of the ERP system which was the main instrument for congestion management in Singapore. The participants also toured the Land Transport Authority's Land Transport Gallery for an overview of Singapore's sustainable and integrated approach to developing a world class transport system. This was followed by a ride on the driverless underground train and tour of an integrated transport hub where various transport modes and commercial/residential developments are seamlessly integrated both vertically and horizontally. Delegates were also given the opportunity to ride a fully automated light rail system to gain an overview of the integration of public transport within a large residential town.

Subsequently delegates were taken to the BMW Clean Energy Pavilion that showcased liquid hydrogen-powered BMW limousines, along with a mobile liquid hydrogen re-fuelling station. The vehicles demonstrated the future vision of sustainable mobility using this clean energy. Delegates were given a short presentation by the BMW experts on the technical details of this new technology.