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IMPLEMENTING THE BANGKOK 2020 DECLARATION TOWARDS PROMOTING ENVIRONMENTALLY SUSTAINABLE TRANSPORT IN DEVELOPING ASIA

(EST Session 1 of the Provisional Programme)

Final Draft

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Executive Summary

The Bangkok 2020 Declaration on Sustainable Transport is an important milestone in the development of sustainable transport in Asia. It is the first regional declaration on the strengthening of environmentally sustainable land transport in developing Asia which contains time bound goals as well as indicators to assess progress in meeting them. The Asian EST Initiative and its key component, the Regional EST Forum, was able to exploit the institutional vacuum that existed between need and opportunity for an institutional mechanism on environmentally sustainable transport in developing Asia.

The significance of the EST Forum is the fact that it is the only meeting where the Ministries of Transport, Environment, and Health are brought together. The EST Forum has played an important role in shaping the regional policy consensus on environmentally sustainable land transport in developing Asia. Increasingly different types of groups working on transport in Asia have come to rely on the EST Forum as the primary policy forum on EST in Asia and on UNCRD to facilitate it.

The continued relevance of the EST Forum, following the regional expansion of the EST Forum to South Asia and the thematic broadening with the inclusion of climate change, will be determined by the extent to which the regional policy consensus will be integrated in transport policies, programmes, and projects of various stakeholders in Asia and its replication in other parts of the developing world.

Now that many external stakeholders are familiar with the EST Forum process and there is a clear roadmap in the form of the Bangkok 2020 Declaration, it is important to mobilize key external stakeholders and encourage them to actively contribute towards the implementation of the Bangkok 2020 Declaration. Consideration could be given to developing Memorandums of Agreement with such key external stakeholders to document their contribution to the implementation of the Bangkok 2020 Declaration.

The Asian EST Forum can reach out more to global policy processes which influence the setting of the agenda for sustainable development. This could include the global debate on sustainable development through the Commission on Sustainable Development as well as the global debate on climate change through the United Nations Framework Convention on Climate Change. Having a stronger articulation of the goals of the Bangkok 2020 Declaration in such processes can increase the priority for EST by Asian governments and increase external support available to implement EST in Asia.

Regional bodies, such as the Economic and Social Commission for Asia and the Pacific (ESCAP) and the Association for South-East Asian Nations (ASEAN), and multilateral and bilateral development organizations working at the regional level, are key partners for the EST Forum in the implementation of the Bangkok 2020 Declaration and can be tapped for policy coordination, financial assistance, and knowledge activities.

It is the implementation of the Bangkok 2020 Declaration at the national and local levels which determines whether the EST process will prosper further. It is important to strengthen the linkage between central policy objectives for the transport sector of participating countries and cities and the goals expressed in the Bangkok 2020 Declaration. Many of the goals contained in the Bangkok 2020 Declaration are local in nature and cities would be the places which will determine its success. It is important, therefore, to consider how to continue the EST Forum's efforts with the 2007 Kyoto Declaration for the Promotion of Environmentally Sustainable Transport in Cities.

International and national NGOs can be important partners for the EST Forum. Because of the still limited scale of activities by both national and international NGOs, their role in the implementation of the Bangkok 2020 Declaration is likely to be limited. It is in the interest of the EST Forum to give a more prominent role to national NGOs in promoting EST in the Asian region.

To develop stronger ties with different types of stakeholders, it is important to strengthen outreach activities on the EST Forum process as well as the Bangkok 2020 Declaration. It might be worthwhile to consider a review of the EST website, and to develop additional promotional materials summarizing the EST process. Consideration should be given in that case to making materials available in languages other than English.

An area of concern when it comes to the future of the Regional EST Forum is the continuity of the Asian EST Initiative and its ability to follow up on the implementation of Bangkok 2020 Declaration at the global, regional, national, and local levels. There is an imminent danger that the further development and evolution of the EST process in Asia and its expansion into Latin America and Africa will be hampered by the lack of resources to follow through on the awareness and general commitment that has been created towards environmentally sustainable transport. To strengthen the Asian EST Initiative, three strategic options are suggested: (a) increase the human resource at UNCRD by increasing resources from key donor agencies; (b) strengthen coordination and cooperation with the Asian Development Bank by making them co-facilitator of the EST Forum in Asia; and (c) explore options for cooperation with regional commissions and sub-regional organizations such as ESCAP, ASEAN, and SACEP. Another potential solution, which would address the challenge of institutional capacity and coordination at the global level, would be the setting up of UN-Transport, along the lines of UN-Water and UN-Energy, to make the transport theme more visible in international policy fora on climate change, sustainable development, and others.

While the financing needs for the implementation of the Bangkok 2020 Declaration are considerable, it is believed that its full costs are actually lower than the business-as-usual scenario to provide transport infrastructure and services to respond to, and enable, economic and social development of the Asian region. The challenge in Asia is, therefore, not just the generation of financial resources for infrastructure development but as much that such financial resources are channelled to the right transport objectives. This will require the establishment of new financing structures to support local governments and private sector organizations in taking up an active role in the provision and operation of passenger and freight transport services. Regulatory

frameworks are required, which clearly describe the responsibilities of private sector developers and users of transport services in establishing environmentally sustainable transport. Governments should make creative use of the sizeable assistance that development agencies provide to the transport sector in Asia and ensure that such assistance is not limited to individual projects, but rather for system change by combining assistance for demonstration projects with assistance for strengthening policies and institutional capacities.

Funding of environmentally sustainable transport will also be greatly helped if countries would price fuel appropriately, which for several countries would require removing direct subsidies while for others it would require applying more appropriate taxes. Making driving cheap raises the unsustainability of the sector through additional mileage which translates in more emissions, congestion, and traffic deaths. At the same time, it denies the government access to finance which could be used to transform the transport sector and put it on a more sustainable development trajectory.

In developing a monitoring framework for the Bangkok 2020 Declaration, it might be useful to distinguish between: Impacts, Outcomes, Policies, and Governance/ Institutions. Whereby:

- Impacts are a translation of the vision on EST expressed in the Bangkok 2020 Declaration. The impacts can be subdivided in economic, environmental, and social;
- Outcomes describe the changes in transport structures required to achieve the described impacts. Examples of indicators are Land-use Patterns, Energy Intensity of Transport Sector, Passenger and Ton Kilometres, and Modal Split;
- Policies are the collection of measures to be undertaken to accomplish changes in structure of the transport sector. They can be subdivided in Avoid, Shift, Improve policies;
- Governance/institutions refer to the collective of stakeholders, their capacity, their interplay and their financial means to develop, implement, and monitor policies. These can be subdivided in indicators on data, institutions, and financing.

The emphasis of the monitoring, or self-reporting, of the Bangkok 2020 Declaration by the EST Forum members could be on policies and governance/institutions. These are directly under the control of the governments and require the least amount of resources to monitor. For the impacts and outcomes, it is suggested that the EST Forum cooperates with other stakeholders who are better positioned to collect and analyse these types of information.

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List of Abbreviations

ADB	Asian Development Bank
ASEAN	Association for South East Asian Nations
BRT	bus rapid transit
CAI-Asia	Clean Air Initiative for Asian Cities
CDM	Clean Development Mechanism
CSD	Commission on Sustainable Development
CTF	Clean Technology Fund
ESCAP	Economic and Social Commission for Asia and the Pacific
EAST	Eastern Asia Society for Transport Studies
EST	environmentally sustainable transport
FTS	Regional EST Forum for Latin America
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gases
GIZ	German International Cooperation
GTI	Global Transport Intelligence
ICT	information and communication technology
IDB	Inter-American Development Bank
IRAP	International Road Assessment Program
IGES	Institute for Global Environmental Strategies
JICA	Japan International Cooperation Agency
ITDP	Institute for Transportation and Development Policy
MDB	multilateral development bank
MEET	Ministerial Conference on Global Environment and Energy in Transport
NAMAs	nationally appropriate mitigation actions
NEST	national environmentally sustainable transport strategies
NGO	non-governmental organization
NMT	non-motorized transport
PPP	public-private partnerships
SLoCaT	Partnership on Sustainable Low Carbon Transport
UNCED	United Nations Conference on Environment and Development
UNCRD	United Nations Centre for Regional Development
UN-DESA	United Nations Department for Economic and Social Affairs
UNFCCC	United Nations Framework Convention on Climate Change
VREF	Volvo Research and Educational Foundations
WHO	World Health Organization

1. Introduction

The Bangkok 2020 Declaration on Sustainable Transport[1] is an important milestone in the development of sustainable transport in Asia. It is the first declaration on the strengthening of environmentally sustainable (land) transport (EST) in developing Asia which contains time bound goals as well as indicators to assess progress in meeting them.

The scope of this document is threefold: (a) to analyse the positions of various transport-related stakeholders with the aim of maximizing the support and engagement of a wide range of stakeholders in the implementation of the Bangkok 2020 Declaration; (b) to assess financing options for the implementation of the Bangkok 2020 Declaration; and (c) to propose a monitoring framework for the implementation of the Bangkok 2020 Declaration up to 2020.

The development of this paper was greatly facilitated by the discussions in a dedicated session on the Bangkok 2020 Declaration during the Better Air Quality 2010 workshop in November 2010,[2] the Seoul workshop on Nationally Appropriate Mitigation Actions (NAMAs) as Catalysts for Environmentally Sustainable Transport in April 2011, [3] and the planning meeting of the Global Transport Intelligence initiative in Paris in May 2011.[4]

A special word of thanks goes to the persons who reviewed earlier drafts of this paper.[5]

2. Evolution of the EST Process in Asia

The Environmentally Sustainable Transport (EST) Forum process started with two preparatory meetings in Nagoya, Japan (2003) and Manila, Philippines (2004) before the first formal EST Forum was convened in Nagoya, Japan in 2005. Subsequent meetings were held in Yogjakarta, Indonesia (2006), Kyoto, Japan (2007), Singapore (2008), Seoul, Republic of Korea (2009), and Bangkok, Thailand (2010).[6]

Box 1. United Nations Centre for Regional Development Environmentally Sustainable Transport Initiative

In collaboration with the Ministry of the Environment of the Government of Japan, the United Nations Centre for Regional Development initiated the Asian Environmentally Sustainable Transport (EST) Initiative in 2004 to bring together government officials, experts, and other stakeholders in resolving transport and sustainable development. The

[1] See http://www.uncrd.or.jp/env/5th-regional-est-forum/doc/bangkok_declaration.pdf
[2] See http://baq2010.org/node/1474
[3] See http://www.slocat.net/event/265
[4] See http://www.slocat.net/event/465
[5] Reviewers included Tom Hamlin, Narayan Iyer, Todd Litman, Choudhury Rudra Charan Mohanty, Hisashi Ogawa, Michael Replogle, and Lloyd Wright.
[6] See http://www.uncrd.or.jp/env/est/

Initiative aims to build a common understanding across Asia about the essential elements of EST and the need for an integrated approach at the local and national levels to deal with multi-sectoral environment and transport issues, including reductions in greenhouse gas emissions. Currently, the participating countries include the member nations of the Association of Southeast Asian Nations, Afghanistan, Bangladesh, Bhutan, China, India, Japan, Maldives, Mongolia, Nepal, Pakistan, Republic of Korea, and Sri Lanka.
Under the Initiative, the First Regional EST Forum, held in Aichi, Japan, in 2005, resulted in the Aichi Statement, which articulated a comprehensive list of sustainable transport objectives based on 12 major thematic areas. This Statement provides a basis for the participating countries to regularly report upon progress in reaching the objectives. Subsequently, in 2007, 2008 and 2010, over 40 Asian cities signed the Kyoto Declaration for the Promotion of Environmentally Sustainable Transport in Cities endorsing the objectives underlined in the Aichi Statement.
In 2009, the Initiative produced the Seoul Statement towards the Promotion of Environmentally Sustainable Transport (EST) for a Low-Carbon Society and Green Growth in Asia. This Statement particularly highlighted the need for regional efforts towards win-win solutions that capture co-benefit considerations in addressing sustainable transport and climate change.

The context for policy making on sustainable transport in Asia and the history of the UNCRD-led EST Forum process can best be described as: "need meets opportunity".

Need: developing Asia has, and still is, experiencing rapid economic growth which has been associated with rapid motorization, and in many countries also rapid urbanization. China is now the country with the largest vehicle sales in the world and it is expected that close to 1 billion people will be added to the urban population in developing Asia over the next twenty-five years. The transport infrastructure and services that will go hand in hand with this process of urbanization will further decrease the sustainability of urban life in Asia if a business-as-usual model of poor transport planning is followed in the process of urban development. Notwithstanding the critical importance of the transport sector for realizing sustainable development in Asia, prior to the EST Forum, there was no established Asia-wide process to discuss and establish new paradigms on transport, mobility, and sustainability.

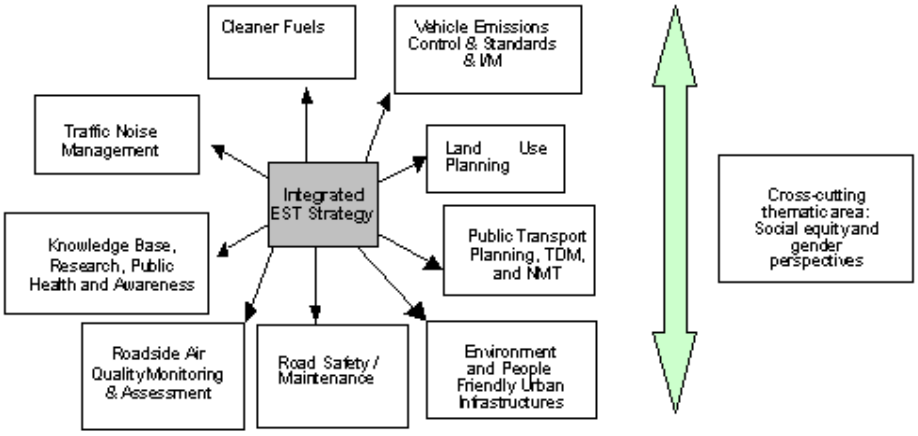
Opportunity*:* the increase in motorization and urbanization in Asia comes with an increased awareness among stakeholders on the growing negative externalities of past and current mobility models: increasing congestion especially in the cities, decreasing air quality, and growing numbers of people killed or wounded in traffic accidents. More recently, concerns are growing about the increasing contribution of transport to climate change as well as concerns about growing fuel imports and deteriorating energy security. Cracks are starting to appear in traditional transport policy, best described as "predict and provide" whereby additional road infrastructure was quickly filled up with additional vehicles. There is a growing insight among transport planners in Asia that after strengthening transport infrastructure it is now important to focus more on transport services for reasons of sustainability and to enable access more efficiently. At the regional level, there is a growing willingness to go beyond the traditional emphasis on integration of infrastructure in support of trade facilitation and to consider common approaches to land transport at the national and urban levels. Finally, the growth of regional institutions such as the Association for South East Asian Nations (ASEAN) and its outreach to

economic powerhouses such as China and India as well as the strengthening of other regional institutions such as the Economic and Social Commission for Asia and the Pacific (ESCAP) has also prepared the ground for more intensive policy dialogues on environmentally sustainable transport in Asia.

The Asian EST Forum process was able to exploit the institutional vacuum that existed between need and opportunity for an institutional mechanism on environmentally sustainable transport in developing Asia. The success and effectiveness of the Asian EST Forum process has been influenced by the consistently incremental and inclusive approach in its development:

a) *Areas covered;* from the beginning, the EST Forum has taken a broad-based approach to transport which initially included eleven different dimensions of environmentally sustainable transport (see figure 1). To respond to the growing awareness on the importance of global climate change, the EST process has put increasing emphasis on transport and climate change in recent meetings of the EST Forum. Also, more attention is now being paid to freight and logistics;

Figure 1. Initial Dimensions of Environmentally Sustainable Transport



b) *Participating countries;* the EST process started initially with countries from South-East and North-East Asia, and once the Forum was well established it was expanded with countries from South Asia to reinforce the regional character of the EST Forum;

c) *Participating ministries;* initially the EST Forum included only the ministries of transport and environment but in recent years, with the support of the World Health Organization (WHO), the ministries of health have been added which has strengthened the focus of the EST Forum on health-related issues such as air pollution and road safety. The EST Forum has been successful in gradually increasing the level of seniority in the representation of participating ministries; this has

gone from senior staff to high level (Director General, Secretary, Vice Minister, or Minister);[7]

d) *Involvement of cities*; to enable cities to take a more active part in the discussions on EST in Asia, reflecting their important role in developing EST, a dedicated EST policy dialogue on urban transport was organized in Kyoto in 2007 which resulted in the Kyoto Declaration for the Promotion of Environmentally Sustainable Transport (EST) in Cities which now has been signed by forty-four mayors of Asian cities;[8]

e) *Type and role of experts*; to guide the discussions in the EST Forum and to provide inputs in the declarations and statements adopted at the the EST Forum, a diverse group of experts from within Asia and outside has been used. This has helped to bring in the latest thinking in areas covered by the EST Forum and choosing experts in a strategic manner has helped to link more and more international and regional organizations to the EST Forum process;

f) Observers involved in forum; the EST Forum is increasingly becoming a meeting place for organizations working on transport in Asia. This not only benefits the discussions in the Forum, but at the same time it enhances the chances that the recommendations of the EST Forum will be applied in externally funded transport programmes and projects; and

g) *Statements and declarations*; the Asian EST Forum has adopted a series of statements and declarations:

- Starting with the "Manila Statement – Toward the Realization of Environmentally Sustainable Transport in Asia,"[9]
- The "Aichi Statement – Towards establishment of the Regional Forum for the Promotion of Environmentally Sustainable Transport (EST) in Asia;"[10]
- The Kyoto Declaration for the Promotion of Environmentally Sustainable Transport (EST) in Cities;
- The Seoul Statement – Towards the Promotion of Environmentally Sustainable Transport (EST) for a Low-Carbon Society and Green Growth in Asia;[11]; and
- The "Bangkok 2020 Declaration for 2020 – Sustainable Transport Goals for 2010-2020".[12]

These statements and declarations show an increased level of sophistication and detail in analysis, goals, and recommended means to accomplish these goals.

[7] The last EST Forum in 2010 included 4 ministers among its participants.
[8] See http://www.uncrd.or.jp/env/est/index_mayors.htm
[9] See http://www.uncrd.or.jp/env/est/mpd/docs/mpd_manila%20statement.pdf
[10] See: http://www.uncrd.or.jp/env/est/index_mayors.htm
[11] See: http://www.uncrd.or.jp/env/4th-regional-est-forum/index_seoul_statement.htm
[12] See: http://www.uncrd.or.jp/env/5th-regional-est-forum/doc/bangkok_declaration.pdf

The statements and declarations have helped to deepen the policy process on EST in Asia and broaden the buy-in of stakeholders for sustainable transport in Asia. At the same time, the consultations and deliberations on the statements and declarations are important forms of capacity building for the participating senior representatives in the EST Forums, notwithstanding that there is scope for improvement in the continuity of personal attendance in the Forum meetings.

The significance of the EST Forum is that it is the only meeting where the ministries of transport, environment, and health are brought together. The EST Forum has played an important role in shaping the regional policy consensus on environmentally sustainable land transport in Asia, especially in developing countries. Its continued relevance, following the regional expansion of the EST Forum to South Asia and the thematic broadening with the inclusion of climate change, will be determined by the extent to which the regional policy consensus will be integrated in transport policies, programmes, and projects of various stakeholders in Asia[13] and its replication in other parts of the developing world. On the latter, the inaugural EST forum for Latin America was organized from 22 to 24 June in Bogota, Columbia by UNCRD, Inter-American Development Bank (IDB), and Ministry of Transport-Columbia.[14] It was agreed that there will be a follow-up forum meeting, focusing on cities in October 2012 in Mexico City, and a follow-up forum meeting at the national level in September 2013 in Asuncion, Paraguay.

3. Stakeholders on EST in Asia and Their Contribution to the Implementation of the Bangkok 2020 Declaration

3.1 Stakeholder identification and characterization

The Asian EST Forum process is relevant to a wide range of stakeholders engaged in promoting sustainable transport in developing Asia. These stakeholders can be at the global, regional, national, and local levels:

- Global bodies;
- Intergovernmental bodies;
- International development organizations (multilateral and bilateral);
- International and national nongovernmental organizations (NGOs);
- Networks of academic organizations; and
- Private sector branch organizations.

[13] A good illustration of this is the National EST Strategy for the Philippines which was formulated, with UNCRD support, through a series of participatory and consultative processes with the active involvement and cooperation among key ministries as well as strong governmental leadership (see http://www.uncrd.or.jp/env/est/).
[14] See http://www.uncrdlac.org/fts/

Global Bodies

The Commission on Sustainable Development (CSD) was an outcome of the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. The recommendations from UNCED on sustainable development contained in Agenda 21 were subsequently further detailed in the Johannesburg Plan of Implementation at the World Summit on Environment and Development in Johannesburg in 2002. Transport plays a key role in Agenda 21 and the Johannesburg Plan of Implementation. The upcoming Rio+20 United Nations Conference on Sustainable Development meeting, which is scheduled for June 2012 in Rio de Janeiro, will focus on the Green Economy and Institutional Arrangements for Sustainable Development.

The CSD was established by the UN General Assembly in December 1992 to ensure effective follow-up of the Earth Summit in Rio 1992 and Johannesburg in 2002. In each of the two-year cycles, a range of 3-5 topics are reviewed (Year 1) and necessary actions defined (Year 2). Transport was covered in 2000 and 2001,[15] and is again covered in the cycle 2010-2011.[16] The Bangkok 2020 Declaration was presented during the 19th session of CSD in May 2011 and several of the goals of the Bangkok 2020 Declaration are reflected in the draft text of the final outcome of CSD 19.[17]

Another important global stakeholder is the United Nations Framework Convention on Climate Change (UNFCCC). So far in the UNFCCC process limited attention has been given to land transport. Thus, the UNFCCC has done relatively little to inspire climate change-oriented efforts in the transport sector in the developing countries; rather the opposite is happening and increasingly the transport community has been lobbying UNFCCC to acknowledge the importance of the transport sector as a contributor to climate change.[18] Transport is better reflected in the work of the Global Environment Facility (GEF), which is increasingly important as a source of funding and innovative transport projects are in place or under development in key Asian countries. The latest GEF policy on transport is well in line with the goals expressed in the Bangkok 2020 Declaration.[19]

Another climate change-oriented global forum is the "Ministerial Conference on Global Environment and Energy in Transport" (MEET), hosted by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Government of Japan, first convened on 15-16 January 2009.[20] A second meeting was held in 2010 in Italy. MEET focuses on land transport as well as international aviation and shipping. An important attribute of MEET is that it creates a dialogue between the developed world (G8) and the developing world, with initially an emphasis on developing Asia. Although there was a follow-up meeting in 2010 in Europe, the MEET process is to a

[15] See http://www.un.org/esa/sustdev/csd/ecn172001-19e.htm#Decision9/3
[16] See http://www.un.org/esa/dsd/susdevtopics/sdt_transport.shtml
[17] This is helped by the fact that UNCRD is now part of the Sustainable Development Division of the Department for Economic and Social Affairs. The Sustainable Development Division provides the Secretariat to the CSD meetings. See: http://www.iisd.ca/download/pdf/enb05304e.pdf, please note that no final agreement was reached on the text proposed by the Chairperson of CSD 19.
[18] See the efforts of the Bridging the Gap initiative (www.transport2012.org) and the Partnership on Sustainable, Low Carbon Transport (www.slocat.net).
[19] See http://www.thegef.org/gef/sites/thegef.org/files/publication/STAP-Sustainable%20transport.pdf
[20] See http://www.mlit.go.jp/kokusai/MEET/documents/PressRelease20090116.pdf

large extent ad-hoc and more externally driven (Government of Japan) than other more institutionalized intergovernmental structures in Asia, including ESCAP and certainly ASEAN, which are much more bottom-up, party driven processes.

Another emerging global process relevant to the Asian EST Process is the UN Decade of Action on Road Safety which was launched on 11 May 2011.[21] So far the Asian EST process has however not addressed road safety in a similar detailed manner as, for example, climate change which was the key focus of the Seoul Statement.

WHO is becoming an increasingly relevant organization for the EST Forum. Since 2000, WHO has addressed the health effects of urban transport through associated risk factors, such as air pollution, traffic accidents, noise and physical activity (or inactivity), in Europe, the Americas, and Asia. The WHO Regional Office for the Western Pacific has participated in the Regional EST Forum in Asia since the beginning, and together with UNCRD and the Alliance for Healthy Cities, embarked on an initiative called "Environmentally Sustainable and Healthy Urban Transport (ESHUT)" which promotes non-motorized transport (e.g., walking and bicycling) and efficient public transport, thereby reducing the use of private motor vehicles.[22] WHO is currently assessing the health effects or benefits of the green economy, and one of the sectors being addressed is transport.[23]

Concluding, there is scope for the Asian EST Forum to reach out more to global policy processes which influence the setting of the agenda for sustainable development. Having a stronger articulation of the goals of the Bangkok 2020 Declaration in such processes can increase the priority for EST by Asian governments and increase external support available.

Regional Bodies

ESCAP is the most well established Asia-wide regional intergovernmental body. Its transport activities so far are, however, strongly aimed at regional integration of transport infrastructure and trade facilitation. ESCAP leads a Ministerial Conference on Transport. This was initially held in Busan, Republic of Korea, in 2006, and culminated in the adoption of the Busan Declaration on Transport Development in Asia and the Pacific[24] as well as the Regional Action Programme for Transport Development in Asia and the Pacific, Phase I (2007-2011). Although the development of environmentally sustainable land transport is not a direct priory for ESCAP, it does maintain the most comprehensive database on land transport in Asia,[25] which could be an important contribution to the monitoring of the EST Forum's Bangkok 2020 Declaration. ESCAP is also an important potential partner for the EST Forum because of its lead role in the Ministerial Conference on Environment and Development.[26]

[21] See http://www.who.int/roadsafety/decade_of_action/en/index.html
[22] See http://www.wpro.who.int/health_topics/transport/
[23] See http://www.who.int/hia/green_economy/en/index.html and http://www.who.int/hia/hgebrief_transp.pdf
[24] See E/ESCAP/63/13, chap. V
[25] See http://www.unescap.org/ttdw/data/index.aspx
[26] See http://mced6.org/en/

ASEAN is a regional organization established in 1967. It currently has ten members (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) and is the strongest regional intergovernmental body in Asia. The signing of the ASEAN Charter in November 2007 launched a further phase in the ongoing institutionalization of ASEAN. The process of regional integration under the ASEAN umbrella is based on three pillars. These are to create a political-security community, establish an economic community, and develop a socio-cultural community.

ASEAN transport activities are part of its economic community and so far are mostly aimed at regional integration and trade facilitation, and less so at land transport at the national or urban level. Strong points of the ASEAN structure are its continuity and the buy-in through the layered, country-driven, decision-making structure consisting of ASEAN Summit, Ministerial Meeting, Senior Officials Meeting, and Working Groups. A challenge in advancing EST in ASEAN is that environment is dealt with institutionally mostly in the socioeconomic community, while transport is within the economic community in ASEAN, which is a different part of ASEAN. Another challenge is the built-in geographic limitation due to membership which covers only South-East Asia. This is partly overcome through the ASEAN+3 mechanism, which links ASEAN to Japan, the Republic of Korea, and China. In addition, ASEAN is also strengthening contacts with India. The relevance of ASEAN for the EST Forum process will increase if currently planned projects for ASEAN on road safety with ADB support, and on energy security and climate change in transport with German International Cooperation (GIZ) begins implementation.

Among multilateral development banks (MDBs) and bilateral development organizations are important regional actors on transport in Asia which include: the World Bank and ADB; JICA, German Development Bank (KfW), Agence Française de Développement (AFD); and GIZ. There is increasing policy convergence between MDBs and bilateral development organizations and the policy recommendations in the Bangkok 2020 Declaration; this makes this type of stakeholders a natural partner for UNCRD. While MDBs and bilateral development organizations are the largest external financial supporters of transport in Asia, in most cases their assistance is largely project based. The policy emphasis in the Bangkok 2020 Declaration complements such projects very well and offers the basis for scaling up of successful project experiences of the MDBs and bilateral development organizations.

Of the MDBs, the ADB is the organization with the most specific mandate for regional cooperation.[27] ADB has the modalities for regional cooperation and through support for, among others, the Clean Air Initiative for Asian Cities (CAI-Asia) and the SLoCaT partnership, ADB has demonstrated its commitment to engage in building of Asian-wide partnerships on sustainable transport. Through some of the ADB Institute studies on regional infrastructure, ADB has started to position itself as a regional knowledge centre on transport.

Bilateral development organizations have been a less important stakeholder for sustainable transport in Asia than multilateral ones in terms of providing financial assistance. However, they have been important through their knowledge and capacity

[27] See http://www.adb.org/About/policies-strategies.asp

building-related activities and by undertaking pilot projects. Good examples of these are Germany's Sustainable Urban Transport Project [28] and International Climate Initiative [29] which are instrumental in promoting sustainable transport. Japan, in addition to its financial support through JICA, has promoted EST at the regional level by acting as the main funder for the EST Forum and by supporting other regional organizations, such as the Institute for Global Environmental Strategies (IGES) and the Overseas Environmental Cooperation Centre (OECC). Sweden has been instrumental in strengthening air quality management, including air pollution from vehicles, and promotion of sustainable transport through, among others, the Sustainable Urban Mobility in Asia Program.[30]

In conclusion, regional bodies and multilateral and bilateral organizations working at the regional level are key partners for the EST Forum in the implementation of the Bangkok 2020 Declaration and can be tapped for policy coordination, financial assistance, and knowledge activities. Partnerships should be established with regional ministerial processes of not only transport, but also other related sectors, such as environment and health, e.g., the ESCAP-led Ministerial Conference on Environment and Development, and the Ministerial Regional Forum on Environment and Health led by the United Nations Environment Programme (UNEP) and WHO.

National and international NGOs

The significance and impact of national NGOs on sustainable transport in Asia varies between countries, but generally is still weak. Exceptions to that are the Center for Science and Environment (CSE) in India and the Energy Foundation in China, both of whom are relatively strong NGOs and who have been able to influence policy in their respective countries. Their focus was initially mostly on local environmental issues, but now they are increasingly focusing on climate change issues as well, especially in the case of CSE. They have moved from an emphasis on projects towards a more policy-oriented approach. The examples of CSE and Energy Foundation have not been well replicated, either within India or China or in other parts of developing Asia. Generally transport- and environment-oriented NGOs are still not doing well, which is somehow surprising considering that transport is in most cases a very local topic.

Transport-oriented international NGOs – like the Institute for Transportation and Development policy (ITDP), EMBARQ/World Resources Institute for Sustainable Transport, CAI-Asia, and the International Council for Clean Transportation have grown in strength in recent years; additional funding has increased their outreach. Some of these (ITDP and EMBARQ) have been instrumental in implementing some of the key transport concepts of the Bangkok 2020 Declaration e.g. BRT, NMT, Land Use Planning. Others (CAI-Asia and ICCT) have been working more on direct emission reduction of both air pollution and GHGs. Influenced by priorities of their funders, they tend to be biased towards the larger countries in Asia (probably because of funders), and they are showing an increasing orientation towards climate change (again because of funders). While all acknowledge the importance of social

[28] See www.sutp.org
[29] See http://www.bmu.de/english/climate_initiative/general_information/doc/42000.php
[30] See http://cleanairinitiative.org/portal/node/2206

sustainability and have some related activities, generally their specific focus on social sustainability issues has been less well articulated.

Most international and national NGOs working on transport have a limited profile on road safety. EMBARQ is so far the only NGO with a large portfolio on Transport and Environment, which also has a substantial Road Safety programme. Recently, there are some dedicated international road safety NGOs, such as the FIA Foundation and IRAP that are starting activities on road safety in Asia. The efforts of these international NGOs are being hampered by the absence of strong national NGOs working on road safety in Asia.

In conclusion, international and national NGOs can be important partners for the EST Forum in its further conceptual development. Because of the still limited scale of activities by both national and international NGOs, their role in the implementation of the Bangkok 2020 Declaration is likely to be limited. It is in the interest of the EST Forum to give a more prominent role to national NGOs in promoting EST in the Asian region.

Academic Networks

Academic networks are so far in general an untapped resource. There are two main academic networks with a focus on transport in Asia. The first is the Volvo Research and Educational Foundations (VREF)[31] which supports Centres of Excellence in India and in China. The second network is the Eastern Asia Society for Transport Studies (EAST) which is a network of transport universities and scientists in thirteen countries in East Asia, Australia, and New Zealand. These academic networks may have some influence through their members at the local and national levels. Also, members of both EAST and the two VREF Centers of Excellence are frequently working as consultants to local and national governments and could become a more influential force in the regional policy dialogue on environmentally sustainable transport in Asia and in the implementation of the Bangkok 2020 Declaration.

Private Sector Branch Organizations

Private sector branch organizations working on transport are mainly vehicle and fuel related. In the case of vehicles, these are national associations of vehicle manufacturers which are also part of regional and global associations. Typically, these associations are active in lobbying with respect to vehicle emission and fuel economy standards and associated fuel quality standards. In some cases, they have supported research programmes in order to justify their stance on emission standards. There are also associations of refiners and companies selling fuels. Neither vehicle manufacturing associations nor the fuel refiner associations have taken so far a great interest in the sustainable transport agenda promoted by the Bangkok 2020 Declaration, and they have not been well represented in the EST Forum meetings.

[31] See http://www.vref.se/

Logistics firms and technology and service providers active in traffic management also have a stake in advancing sustainable transport, but have thus far not been much engaged in its discussion in the national and global policy arena.

Another branch of private sector organizations which so far has largely stayed outside the discussion on sustainable transport are the land developers. As the discussion on sustainable transport evolves and more emphasis is being placed on linking land-use planning to sustainable transport planning, the more important it becomes for the EST Forum to include land developers in the discussion on the implementation of the Bangkok 2020 Declaration.

Concluding Remarks on Stakeholders and Their Engagement with the Bangkok 2020 Declaration

There is a wide range of stakeholders which support or influence the efforts of national and local governments to develop transport infrastructure and transport services. Many of these already embrace the conceptual goals of the Bangkok 2020 Declaration and they provide policy, investment or capacity building support to national or local governments that is in line with the Bangkok 2020 Declaration. Table 1 provides a characterization of stakeholder types in terms of role and contribution to the realization of the strategic goals of the Bangkok 2020 Declaration.

It is difficult to get a complete overview of the current scale of assistance the various stakeholders provide to support the implementation of EST and its distribution between and within countries. The impression comes across that the potential of stakeholder support for the Bangkok 2020 Declaration has not been fully realized. Several of the key stakeholders, especially the MDBs, are still in the process of internalizing sustainable transport in their own operations and aligning their transport operations with newly adopted policies on sustainable transport. Others, such as the international NGOs, are still expanding their organizational capacity and are only now starting to address policy issues after many years of focusing on projects and general awareness raising.

So far the bulk of policy, investment, and capacity-building support to advance EST still comes from international organizations (MDBs, international NGOs) rather than from national organizations. China and India are exceptions by having relatively strong national NGOs and academic institutions. Current support from external stakeholders for the Bangkok 2020 Declaration does not cover all the goals in the Bangkok 2020 Declaration in the same manner. More support is still available for environmental sustainability, especially climate change; while support is building for road safety, relatively little support is available for strengthening social sustainability.

Table 1. Stakeholder Assessment on Potential Contribution to Implementation of Bangkok 2020 Declaration on Sustainable Transport

	Geographic Coverage	Type of Activities			Strengths	Weaknesses	Overall Assessment	
		Policy (* to *****)	Investments (* to *****)	Capacity Building (* to *****)			Current (* to *****)	Potential (* to *****)
Global Bodies								
CSD	global	*****	-	*	Leading global process on sustainable development	Intermittent coverage of transport, subject to political pressure	*	***
UN Decade on Road Safety	global	****	****	***	First global action on road safety	Unproven institutional framework, unclear whether finances will follow initial commitments	-	***
UNFCCC	global	***	**	*	Leading process on climate change, NAMA potential to support low carbon transport	No transport focus, politicized processes	*	**
GEF	global	*	***	**	Funding support for sustainable, low carbon transport	Project driven, transport has to compete with other sectors	**	***
WHO	global	**	-	*	Contributing partner to EST Forum by bringing in health ministries and providing linkage to health agenda	Capacity to follow through on discussions in EST Forum	**	***
Regional Intergovernmental Bodies								
ASEAN	South East Asia	*	*	*	Institutional structures, country driven	Limited focus on national/urban land transport and environment	*	***
ESCAP	Asia	*	-	*	Geographic coverage, intergovernmental mandate, transport data	Limited focus on national/urban land transport and	*	**

	Geographic Coverage	Type of Activities			Strengths	Weaknesses	Overall Assessment	
		Policy (* to ***)**	**Investments (* to *****)**	**Capacity Building (* to *****)**			**Current (* to *****)**	**Potential (* to *****)**
						environment		
SACEP	South Asia	*	-	*	One of few regional bodies in South Asia	Limited capacity, lack of focus on transport so far	-	*
Regional International Development Organizations								
ADB	Asia	**	*****	***	Broad presence, regional mandate, size of transport funding, Sustainable Transport Initiative	Project focus, majority of funding still in roads	***	*****
World Bank	Global	**	*****	**	Broad presence, size of transport funding	Project focus, majority of funding still in roads, less well articulated regional mandate	***	****
JICA	Global	*	*****	*	Broad presence, size of transport funding	Project focus, majority of funding still in roads, relatively less emphasis on capacity building	**	***
KfW and other MDBs	Global	*	***	*	Broad presence, Funding	Project Focus, limited focus on policy and capacity building	*	**
International and National NGOs								
Energy Foundation, China	China	***	*	***	Strong local knowledge, well established linkages with decision makers, access to technical know-how	Scale of funding limits broad involvement at local level. Impact might decrease as other actors become stronger	**	**
CSE, India	India	***	-	**	Strong local knowledge, institutional continuity, broad based support in community	Advocacy role can turn policy makers against CSE. Translating	**	***

	Geographic Coverage	Type of Activities			Strengths	Weaknesses	Overall Assessment	
		Policy (* to ***)**	**Investments (* to *****)**	**Capacity Building (* to *****)**			**Current (* to *****)**	**Potential (* to *****)**
						knowledge and experience in policy		
CAI-Asia	Asia	***	-	**	Accepted as process facilitator, continuity, regional presence across Asia, linkage with MDBs	Project orientation, dependence on diverse range of funders, balance process – in-depth knowledge	***	***
EMBARQ- WRI	Latin America, Asia-India	*	-	**	Strong basis in Latin America, well-resourced, broad focus on sustainable transport, plans to expand Asian presence	Currently limited to India, no regional presence, linkages with MDBs	*	***
I-CE	Global, Asia-India	**	-	**	Leading organization on cycling, linkages to local organizations	Funding problems will affect Asian activities. Focus on India.	*	*
ICCT	Global, China-India	***	-	**	Leading organization on tailpipe emissions (air pollution and GHG)	Only working in Asia in China and India	**	***
ITDP	Global, Asia – India, China, Indonesia	**	*	***	Broad regional presence in Asia, involvement in BRT best practices in Ahmedabad and Guangzhou, interest in scaling up	Downscaling in South-East Asia, project focus and challenges in moving to policy level	**	***
FIA Foundation	Global	*	-	*	Networker on road safety and fuel economy. Stable funding	No regional presence in Asia, only through third organizations.	*	*
IRAP	Global	**	-	**	Leading organization on Road Safety, based in Australia, close to Asia, well focused organization. Can	Limited funding to implement and apply knowledge. High visibility demonstration	*	**

	Geographic Coverage	Type of Activities			Strengths	Weaknesses	Overall Assessment	
		Policy (* to ***)**	**Investments (* to *****)**	**Capacity Building (* to *****)**			**Current (* to *****)**	**Potential (* to *****)**
					prosper if UN Decade on Road Safety takes off.	projects		
Academic Networks								
VREF	Global, Asia-China, India	*	-	**	Well established and funded academic network of transport related institutions with access to global best practices	Presence in Asia is limited. VREF network has limited direct policy linkages	*	*
EAST	East Asia	**	-	***	Well established in East Asia, good coverage of universities. EAST members act as consultants to local and national governments	Linkage to sustainable transport not explicitly stated. Resources for research.	*	**
Private Sector Branch Organizations								
FAMI	Asia	*	-	-	Involves broad range of manufacturers in Asia	Limited focus on sustainable transport	-	*
JAMA	Japan	*	-	*	Involves broad range of manufacturers in Asia	Limited focus on sustainable transport	-	*
UITP	Global	**	**	**	Strong focus on sustainable transport, through its members in the position to influence investments in public transport	Presence in Asia unequal. Main emphasis of UITP not in Asia	*	**

ADB= Asian Development Bank, ASEAN= Association for South East Asian Nations, CAI-Asia= Clean Air Initiative for Asian Cities, CSD= Commission on Sustainable Development, EAST= Eastern Asia Society for Transport Studies, ESCAP= Economic and Social Commission for Asia and the Pacific, CSE= Center for Science and Environment, I-CE= Interface for Cycling Expertise, GEF= Global Environment Facility, IRAP = International Road Assessment Programme , ITDP = Institute for Transportation and Development, Policy, JAMA = Japan Automotive Manufacturers Association, JICA= Japan International Cooperation Agency, FAMI = Federation of Asian Motorcycle Industries, MDB= Multilateral Development Bank, NGO= Non-governmental Organization, SACEP= South Asia Co-operative Environment Programme , UITP = International Association on Public Transport, UNFCC= United Nations Framework Convention on Climate Change, VREF= Volvo Research and Educational Foundations, WRI= World Resource Institute

3.2 Implementing the Bangkok 2020 Declaration: Building stronger ties with stakeholders

To consolidate and further strengthen the role of the Asian EST Forum and the Bangkok 2020 Declaration in guiding land transport-related policy making and the development of environmentally sustainable transport infrastructure and transport services, it is important to further position the Bangkok 2020 Declaration and EST Forum process vis-à-vis global, regional, and national policy processes.

Supportive Global Processes

At the global level, there are currently three types of processes that are relevant for the EST Forum. These are first and foremost CSD and the Rio+20 process; secondly, the UNFCCC process; and thirdly, the UN Decade of Action for Road Safety.

The CSD and Rio+20 processes are comprehensive in nature and link transport to the process of sustainable development. The Rio+20 process does this through its emphasis on green growth and institutional mechanisms and forms an ideal platform for the EST Forum to demonstrate its regional relevance. The Bangkok 2020 Declaration can be positioned as one of the first sectoral, regional elaborations of the principles under discussion in the Rio+20 process. This role of the Bangkok 2020 Declaration as a regional and sectoral elaboration of a global agreement will be strengthened once the planned Latin American EST Forum takes place and the Bogota 2020 Declaration on Sustainable Transport is adopted. A third regional EST Forum for Africa would more or less complete the coverage of main regions in the developing world with related policy processes on environmentally sustainable transport. The more effective UNCRD is in setting up an interrelated set of regional EST Forums, the more likely it will be that other stakeholders will be guided by the goals outlined in the respective regional agreements in the design of their policy, investment, and capacity-building assistance.

For parties discussing the future global arrangements of sustainable development in the context of CSD and Rio+20, it should be a reassurance that through the EST Forum in Asia and Latin America there is a mechanism in place to translate such conclusions and recommendations to the transport sector. Indeed, this is a key sector for social economic development and for achieving the MDGs, but one where, before the establishment of the EST Forums, there was little regional coordination.

At the global level, the ongoing negotiations on a new agreement to control climate change are important also for the successful implementation of the Bangkok 2020 Declaration. Several of the twenty goals are directly or indirectly climate change related. The relationship of the Bangkok 2020 Declaration with the climate negotiations is a two-way relationship, as in the case of the CSD and Rio+20 process. A successful climate agreement with supportive financing will be an important impetus for all stakeholders supporting climate-related transport programmes in Asia. At the same time, the Bangkok 2020 Declaration itself is an important signal to the climate negotiators that transport-related decision makers in Asia now have a vision

on how to best address climate change mitigation in the transport sector. One could argue that through the negotiation of the Bangkok 2020 Declaration, as of now there appear to be fewer political barriers among key developing nation leaders for advancing low carbon transport goals within a sustainable transport framework than vice versa.

A third global process which is still less well defined, but which is relevant to the Bangkok 2020 Declaration, is the UN Decade of Action for Road Safety. It is important for the EST Forum process to impress on the road safety community that through the Bangkok 2020 Declaration, governments in Asia have already made initial commitments to take on road safety as a priority.

Building Partnerships in Asia

The EST Forum will have to decide what partners in Asia will best serve its interests in promoting the implementation of the EST and how to structure its relationships with these partners.

It is beneficial for the EST Forum if ESCAP, which is the largest region-wide institution with a transport-related mandate, could participate more actively in the process. At the sub-regional level, there is ASEAN with more pronounced structures but which so far has also not become fully involved in environmental sustainability of land transport. Both ESCAP and ASEAN have the potential and capacity to take on activities to support the EST Forum because of their mandate and their larger institutional capacity to administer such processes. To ensure that the involvement of ESCAP and ASEAN is complimentary and not duplicating, the best way forward appears to be for UNCRD to emphasize the potential complementarity of the EST process to policy making by ESCAP and ASEAN. It is important to state that UNCRD is not the exclusive owner of the EST process, rather the true ownership lies with the countries and as such they would need to have an important say in the future of the EST Forum. It would be worthwhile to assess how the relatively general Bangkok 2020 Declaration could be linked to more detailed policy agreements at the regional (ESCAP) or sub-regional level (ASEAN and SACEP). In this context, it could also be considered that ESCAP and/or ASEAN and SACEP play a role in periodic reporting on the implementation of the goals contained in the Bangkok 2020 Declaration.

Within Asia, there is merit in having the involvement of ASEAN with its layered structure (Working Group, Senior Transport Officials Meeting, Ministerial Meetings, ASEAN Summit). This will enable a far more detailed discussion on implementation approaches and reporting mechanism than in the case of the EST Forum, and also ESCAP where in both cases the opportunities for following up on policy agreements in annual or biannual governmental meetings are more limited. In this context, the EST Forum would probably benefit if there would also be a more active sub-regional organization in South Asia which it could partner with. A potential candidate for this would be SACEP.[32] As in the case of ASEAN, such partnership could lead to a more pro-active follow-up of the agreements reached in the regional EST Forum meetings.

[32] UNCRD co-organized in August 2011 with SACEP, the Ministry of Urban Development - India, and Ahmedabad Municipal Corporation a Sub-Regional EST Training Workshop-cum-Policy Dialogue in

Implementing the Bangkok 2020 Declaration at the national and local levels

It is the implementation of the Bangkok 2020 Declaration at the national and local levels which will determine whether the EST process will prosper further. If there is no clear strengthening of the linkage between the central policy objectives of participating countries and cities and the goals expressed in the Bangkok 2020 Declaration, the support of various stakeholders (especially the MDBs, bilaterals and international NGOs) is likely to wean. The direct influence of the EST Forum to promote the translation of the Bangkok 2020 Declaration into national policies and strategies is limited. This was also demonstrated by the first generation of National Environmental Sustainable Transport Strategies (NESTS) in Viet Nam, Cambodia, and Lao PDR which were drafted with a limited involvement of external partners. A second batch of NESTS in Indonesia and the Philippines,[33] which were drafted with the assistance of an external process facilitator (CAI-Asia) and which included more external partners, fared better in terms of local buy-in. How can such processes be set up for a wider group of countries among the twenty-two countries that have signed up to the Bangkok 2020 Declaration and how can such processes be repeated on a regular basis? Or are there other means by which the support of participating countries and cities can be obtained and maintained?

Many of the goals contained in the Bangkok 2020 Declaration are local in nature and cities would be the places which will determine its success. Many of the stakeholders that have expressed support for the Bangkok 2020 Declaration increasingly work at the urban level. In this respect, it is important to consider how to continue the EST Forum's efforts with the 2007 Kyoto Declaration for the Promotion of Environmentally Sustainable Transport in Cities. The Bangkok 2020 Declaration is more detailed in nature and unlike the Kyoto Declaration it has indicators to assess progress. Consideration should be given to whether and how the Kyoto Declaration should be brought into line with the nationally oriented Bangkok 2020 Declaration.

In order to carry the work on EST at the city level forward, the EST Forum could consider to link up with city networks like CITYNET[34] or the ASEAN working group on environmentally sustainable cities.[35]

It is important to strengthen outreach activities by UNCRD on the EST Forum process as well as the Bangkok 2020 Declaration and other statements and declarations leading up to the Bangkok Declaration. The target group of such outreach activities should be primarily national and local policymakers and external stakeholders supporting these efforts. Special attention could be given to targeting national NGOs and universities that can give hands-on assistance to policymakers in the implementation of the goals of the Bangkok 2020 Declaration. It might be worthwhile to consider a review of the EST website, and to develop additional promotional materials summarizing the EST process. Consideration should be given in that case to make materials available in languages other than English. Creating a

South Asia. This is the first phase of cooperation between SACEP and UNCRD in promoting EST and the Bangkok 2020 Declaration in South Asia.

[33] See http://www.uncrd.or.jp/env/est/index.htm#110603est

[34] See www.citynet-ap.org

[35] See http://www.aseansec.org/network_activities.htm

greater awareness among several stakeholders who may not be aware of the plans and progress of the EST Forum can lead to a greater amount of participation and faster progress. It can also support a periodic reporting mechanism which is expected to be established following the Bangkok 2020 Declaration (see chapter 5).

Signing Up Partners

UNCRD has made good efforts to broaden the involvement of external stakeholders in the meetings of the EST Forum and also in the process of formulating, for example, the Bangkok 2020 Declaration. It is recommended to bring on board additional experts or observers for themes which have not received a high priority so far. A good example would be the road safety community where there are organizations like IRAP and FIA Foundation who could be important resource persons.

Now that many external stakeholders are familiar with the EST Forum process and there is a clear roadmap in the form of the Bangkok 2020 Declaration, it could be considered to develop agreements in the form of MoUs, with a first set focused on key external stakeholders and the role they could play in facilitating the implementation of the Bangkok 2020 Declaration. This could include agreements between UNCRD and ESCAP as well as ASEAN to work jointly on policy; investment-related agreements with the MDBs; and capacity building-oriented agreements with international NGOs such as ICCT, ITDP, EMBARQ, and CAI-Asia.

Developing professional associations, academic networks, and ongoing professional development programmes are critical for capacity building on EST in Asia. There are good university and college programmes that teach pedestrian and bicycle planning, parking management, and TDM marketing, and other innovative solutions to transport problems in Asia. How these can be scaled up to meet the growing need for transport engineers, planners, and programme managers? It will be important for the EST Forum to have the closer involvement of such academic organizations. The key message is that, by developing EST educational programmes, Asian countries can develop their own expertise rather than being forced to import it from abroad.

Institutional Hosting of the EST Forum

What are the implications of the recommendations for the further development of the EST Forum process for the institutional hosting arrangements of the Forum? The existing arrangement wherein the institutional responsibility for the EST process is relatively isolated from other stakeholders in Asia has its strengths, but also its weaknesses. It has enabled UNCRD to develop the EST process into the leading regional policy process on environmentally sustainable land transport in Asia. At the same time, the Initiative is however increasingly experiencing resource constraints to mobilize required resources in following up on the Bangkok 2020 Declaration at the global, regional, national, and local levels, and there is an imminent danger that the further development and evolution of the EST process in Asia and its expansion into Latin America and Africa will be hampered by the lack of resources to follow through on the awareness and general commitment that has been created towards environmentally sustainable transport.

To strengthen the capacity of Asian EST Initiative to administer the EST Forum process in Asia there are a number of options, which include but are not limited to:

(i) Increase the resource at UNCRD through additional staff, resources for country and city dialogues, etc. Such additional resources could come from bi-lateral and multi-lateral donor agencies, including Japan which has been funding most of the development of the EST Forum till now. They could, however, also come from other sources mobilized through UNCRD or UN DESA, the parent organization for UNCRD in the UN system;

(ii) Adopt the approach which is being followed in the development of the Regional EST Forum (FTS) in Latin America where UNCRD is partnering with IDB in setting up the FTS Forum. IDB in its turn is engaging ITDP and EMBARQ in the preparations of the FST. This greatly enhances the capacity to follow through on any regional consensus on EST reached during the inaugural Forum. If UNCRD would opt for this approach in Asia, the ADB would be the most logical partner because of its emphasis on promoting regional coordination and cooperation in its overall mandate and the shift towards sustainable transport in its transport operations, as defined in its Sustainable Transport Initiative Operational Plan;

(iii) A third option, regional and sub-regional bodies such as ESCAP and/or ASEAN, which also have intergovernmental policy mandate, could consider aligning their activities on environmentally sustainable transport with the EST Forum and the Bangkok 2020 Declaration.

As the EST Forum in Asia evolves further and parallel Forums in Latin America and Africa take off, it would be good to assess how the linkages between UNCRD and the regional EST Forums and the rest of the United Nations could be strengthened. This could result, for example, in a more active engagement of UN DESA in linking the deliberations in the regional EST Forums and their outcomes to the global discussions on sustainable development like the ones in the Rio+20 United Conference on Sustainable Development. As the discussions on sustainable transport evolve in the regional EST Forums, it could also be considered whether there is merit in setting up UN-Transport along the lines of UN-Energy or UN-Water.[36] There are currently several organizations within the UN system which have activities on sustainable transport, e.g., UNEP, UN-Habitat as well as some of the regional commissions like UNECE and ESCAP. Of all these, the efforts of UNCRD are probably the most comprehensive when it comes to land transport in developing countries. There is, however, good scope for some of the specialized UN agencies to make use of the framework created by UNCRD's EST Forums to obtain additional support from EST Forum member countries for their policy recommendations. For UNEP, this could be related to their work on cleaner fuels and vehicles as well as fuel economy and for UN-Habitat on sustainable urban development.

[36] See http://esa.un.org/un-energy/ and http://www.unwater.org/

4. Financing of EST in Asia; Funding the Bangkok 2020 Declaration

Full implementation of the Bangkok 2020 Declaration on Sustainable Transport will have a tremendous impact on the financing of transport infrastructure and transport services in the Asian region. This section attempts to differentiate between business-as-usual approach to transport financing and to an EST approach. It assesses the funding needs for EST in Asia and describes how existing funding mechanisms could be restructured to meet these EST funding needs. It then outlines for each of the twenty goals of the Bangkok 2020 Declaration what indicative funding levels are (compared to the business-as-usual approach) and what the most logical sources of funding would be, and makes suggestions for alternative sources of funding. The section ends with a number of concluding observations and recommendations

4.1 Funding needs for EST in Asia

The cost of expanding transport infrastructure and transport services in the Asian-Pacific region is large: "roughly US$120 billion per year would be needed in the ESCAP region for all transport modes from 2005 to 2015"[37] or "during the ten-year period of 2010-2020, the 32 ADB developing member countries are expected to need almost US$8.22 trillion (in 2008 US$) for infrastructure investment. This amounts to US$747 billion in annual investment needed over 2010-2020 … 35% for transport."[38]

These projections are largely business-as-usual projections. They are mostly infrastructure related and are based on projections of increased urbanization, motorization, and economic growth. The numbers are aggregated and it is difficult to determine what the underlying assumptions are with respect to motorization patterns, modal splits, and activity levels.

The implementation of the Bangkok 2020 Declaration could be facilitated by conducting a detailed country by country assessment of funding requirements for development of the transport sector based on EST principles and goals enshrined in the Bangkok 2020 Declaration. The following elements of the Bangkok 2020 Declaration could impact funding needs for transport, most of them leading to a reduction of overall costs:

- Increased attention for land-use planning and a resulting higher density would reduce the cost of transport infrastructure;
- Higher use of telecommuting would initially increase cost of ICT infrastructure, but could reduce the cost of transport infrastructure and transport services;

[37] See http://www.unescap.org/ttdw/Publications/TPTS_pubs/pub_2399-1/pub_2399-1_ch12.pdf
[38] See B. Bhattacharyay, "Estimating Demand for Infrastructure in Energy, Transport, Telecommunications, Water and Sanitation in Asia and the Pacific: 2010-2020" (ADBI Working Paper 248) (Tokyo: Asian Development Bank Institute, 2010) (Available: http://www.adbi.org/working-paper/2010/09/09/4062.infrastructure.demand.asia.pacific/).

- Increased emphasis on public transport and NMT would result in lower costs for road construction, but higher cost for public transport and NMT infrastructure;
- Larger emphasis on transport services compared to transport infrastructure would have an impact;
- Shifting freight transport from road to rail would decrease investments in road infrastructure, but increase investments in rail;
- Polluter pays principle, e.g., through wide use of congestion charging and other schemes linked to the use of private motorization would reduce the demand for private travel, and thereby the need for transport infrastructure;

The business-as-usual scenario for development of transport is associated with growing negative externalities in the form of congestion; air pollution; fuel subsidies; decreasing road safety, and increased GHGs. The economic cost of each of these runs into billions of dollars and several percentage points of gross domestic product (GDP) but is typically not counted in determining overall cost of future mobility or in the economic evaluation of individual transport projects. The introduction of the Green Economy concept, which is one of the two main themes of the 2012 Rio+20 United Nations Conference on Sustainable Development, might lead to a reassessment of financial resource planning for the transport sector by including the avoided negative costs of transport because of different choices that are made in terms of solutions to mobility needs for persons and goods.[39] Discussions on applying the green economy concept in the transport sector can benefit from similar discussions in the developed world.[40]

4.2 Current funding mechanisms and recommendations for stronger sustainability orientation

Funding for transport investments in developing Asia comes from national or local governments; private sector through public-private partnerships (PPPs); from development assistance; or from climate financing. There is scope within all of these funding arrangements to make greater use of sustainability criteria in allocation of funds, and thereby support the implementation of the goals contained in the Bangkok 2020 Declaration.

a) National-level government financing:

Current situation – transport funding from general treasury or from transport-related taxes and levies (e.g., vehicle purchase tax or registration fees, road or fuel tax), usually on a project by project basis without

[39] For more information on "The green economy in the context of sustainable development and poverty eradication (GESDPE),"see http://www.uncsd2012.org/rio20/

[40] See, for example, the studies Moving Cooler (http://www.movingcooler.info/) and Growing Wealthier (http://www.growingwealthier.info/index.aspx)

consideration of sustainability criteria; private motorization subsidized directly (fuel subsidies) or indirectly by not passing on negative externalities.

Future situation – funding based on transport policy which prioritizes sustainable transport; funding shifts from ad-hoc individual projects to medium-term programmes which provides predictable funding for both construction and operation of sustainable transport infrastructure and services; funding for individual projects to be based on compliance with sustainability criteria; negative external costs are increasingly internalized in economic evaluation of new transport policies, programmes and projects; possible subsidies to be linked to sustainability criteria.

b) Local-level financing

Current situation – dependence on funding from the national level. Limited generation of local revenue for development of transport infrastructure and transport services. Subsidies for local transport services are not linked to sustainability criteria.

Future situation – restructure funding relationship with national government based on performance in meeting sustainability criteria; raise local revenue through vehicle license quota and auctioning; congestion charging, higher parking fees, and land value capture. Subsidies for local transport services performance based and linked to sustainability criteria

c) Private sector - PPP

Current situation – contracts shaped almost exclusively by financial and economic performance criteria, without including sustainability criteria.

Future situation – include environmental and social sustainability criteria in PPP agreements. There are concerns, however, on the potential of PPP financing for sustainable transport. So far the transport sector is still considerably behind the energy sector in the number and volume of PPP transactions.

d) Development sssistance (multilateral and bilateral)

Current situation – funding still mainly project driven and still mostly aimed at road construction or rehabilitation, with limited attention for urban transport, freight, and NMT; economic analysis of projects does not incorporate environmental and other negative externalities; assessment of social and environmental impacts carried out qualitatively.

Future situation – stronger focus on funding transport services for passengers and freight; project selection to be driven by stronger strategic vision; increased emphasis on development of enabling policies and institutional capacities; economic evaluation to include negative externalities.

e) Carbon financing

Current situation – transport sector has until now not been a significant sector in terms of access to funding from the Clean Development Mechanism (CDM), Global Environment Facility (GEF), Clean Technology Fund (CTF), and other climate funds; methodologies for assessing GHG impacts of transport projects are still evolving and not widely applied (see table 2).

Table 2. Overview of Transport Projects in Major Existing Climate Instruments[41]

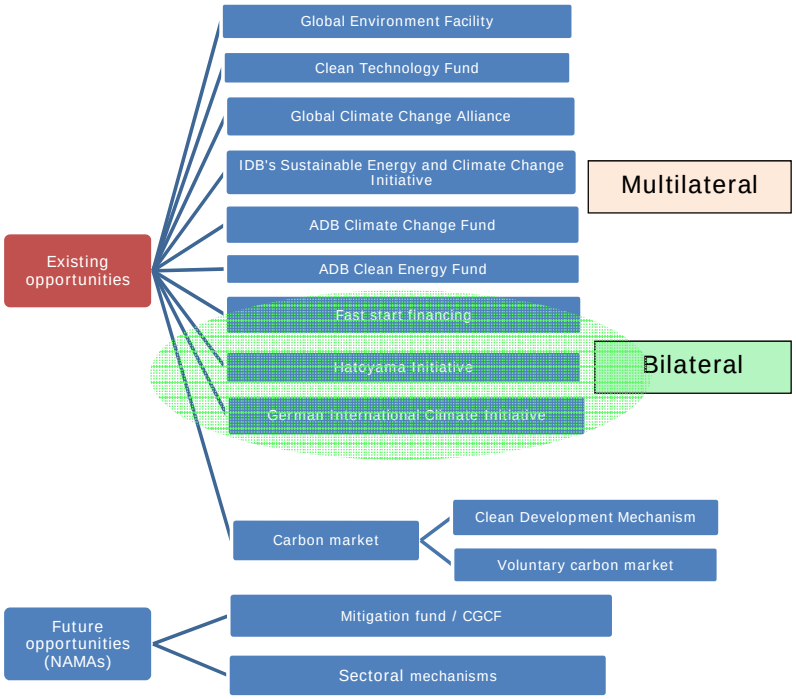
	Year of 1st project	No. of Projects	Funding [$ million]	Reported/Expected Emission Reductions [$MtCO_2$-eq/yr]
CDM	2006	30[a]	672 (CERs)[b]	3.2
GEF-4	2006	37	201 (grants)	3.2[c]
CTF	2009	7	600 (loans)	10[d]

[a]In pipeline (registered, requesting registration and at validation); [b] Expected total undiscounted revenues at 10 $/CER, 3x7 years crediting, excluding transaction cost; [c]Direct impact, assuming 10-year lifetime; and [d]Assuming a lifetime of 10-20 years depending on type of investment.

Future situation – the amount of future funding for climate change will largely depend on whether and what type of international agreement will be reached on climate change for the post-2012 situation; guidelines of NAMAs conducive for transport sector; thematic window for transport under future Green Climate Fund; all climate funds acknowledge and reward the co-benefits of sustainable, low-carbon transport projects; and established methodologies for GHG assessment in all different types of transport programmes and projects. See figure 2 which combines both existing and future funding sources for climate change mitigation in the transport sector.

[41] Stefan Bakker and Cornie Huizenga, "Making climate instruments work for sustainable transport in developing countries," *Natural Resources Forum* 34 (2010):314–26.

Figure 2. Existing and Anticipated Finance Instruments that can Finance Climate Change Mitigation in the Transport Sector[42]



The direct responsibility for funding the development of environmentally sustainable transport infrastructure and services rests with the Asian governments. Developing Asia has resources that can be utilized to meet these financing needs. "The total annual savings of eleven major Asian economies were a massive US$4 trillion in 2007 and US$3.6 trillion in 2006. Moreover, the stock of total official international reserves reached US$3.7 trillion in 2007 (US$3.1 trillion in 2006). This huge pool of Asian savings is sufficient to finance Asia's infrastructure development if means can be found to direct it to that purpose."[43].

The mobilization of large amounts of additional financing for transport infrastructure and services, either from local sources in Asia or from other sources, could require the creation of a series of new modalities and investment structures. Bhattacharyay (2010) presents a range of such new options for structuring new financing modalities to help Asia in funding its expansion of transport infrastructure and services needs (see table 3).

[42] Source: A. Binsted, D. Bongardt, H. Dalkmann, and K. Sakamoto, K. (2010), "Accessing Climate Finance for Sustainable Transport" (Sustainable Urban Transport Technical Document; no. 5) (Eschborn: GIZ, 2010).

[43] B. Bhattacharyay, "Financing Asia's Infrastructure: Modes of Development and Integration of Asian Financial Markets" (ADBI Working Paper 229) (Tokyo: Asian Development Bank Institute, 2010) (Available: http://www.adbi.org/working-paper/2010/07/12/3937.financing.asia.infrastructure/

Table 3. Summary of Options for Infrastructure Financing (B. Bhattacharyay, 2010)

Reserve Bank of Asia	• Combines functions of a reserve bank and an infrastructure financing bank • Authorized capital of about US$300 billion (10% paid-in capital) • Authority to borrow 10% from Asian central bank reserves to invest globally
Multilateral and Bilateral Development Banks	• MDBs and BDBs have an important role to play in reducing gaps in funding when private sector funds do not meet financing needs • ADB has been a reliable funder of a large and broad variety of development projects in Asia, including cross-border infrastructure • MDBs can both create bankable projects and mobilize long-term funding through capital markets, explicit guarantees, and special co-financing arrangements
Local Currency Bond Markets (ABMI)	• Local-currency bond issues minimize currency and maturity mismatches • Promote use of Asian savings and foreign exchange reserves in infrastructure • MDBs can contribute by issuing local currency bonds and undertaking currency swaps • Returns should be attractive, and rated by rating agencies
Asian Infrastructure Financing Bank (AIFB) or Asian Infrastructure Financing Fund (AIFF)	• Either a new specialized investment bank (IFB) or a new Asian Infrastructure Fund (AIF) administered by MDBs, particularly ADB • Intermediate the use of financial assets for infrastructure and other development projects • Provide infrastructure loans and collaborate with the banking community, co-financing and guaranteeing private investment financing • Direct Asian savings to infrastructure development and develop expertise in cross-border infrastructure bond finance • Negotiation, planning, and implementation of a large new institution will be lengthy and less cost-effective
Regional Companies for Financing Specific Sectors	• Finance and manage regional projects for specific sectors • Can also raise funds from capital markets through equity or infrastructure bonds • May take the form of the European Aeronautic Defense and Space Company (EADS) • Sale of public shares throughout the region would help deepen equity markets and provide a needed outlet for savings
Sub-regional Infrastructure Funds or Companies	• Initiatives on infrastructure development in Asia, such as the GMS, ASEAN, SAARC, CAREC, and SASEC • Sub-regional companies can also be established to manage these infrastructure projects
Guaranteed and Linked Bonds	• Exchange rate and inflation guarantees are key risks that guarantees can cover • Credit risk and servicing risk from low initial infrastructure traffic can also be covered • GDP-linked bonds lower debt service payments in times of economic distress, helping governments avoid default from revenue-related fiscal shortfalls, and can offer investors premium returns if GDP growth is strong
Islamic Financial Instruments	• Configure financial packages to meet requirements of Islamic investors • Develop individual and community-level instruments that provide basic banking services to the large Asian Islamic communities • Create an official regional Islamic Financing Bank to provide overhead services to local banking operations
Public-Private Partnerships	• Physical infrastructure requires large investments suited to private sector cooperation • Potential for private financing of up to perhaps 30% of total investment needs
Asian Infrastructure Currency Unit (AICU) denominated bonds	• Focus of AICU is to reduce exchange rate risk • AICU is an accounting mechanism equal to a weighted measure of Asian currencies, and based on *de facto* relative stability between Asian currencies • Weights may depend on factors such as GDP, international reserves, or the basket of currencies used in a specific infrastructure project

Funding of environmentally sustainable transport will also be greatly helped if countries would price fuel appropriately, which for several countries would require removing direct subsidies while for others it would require applying more appropriate taxes. The International Monetary Fund estimated that in 2003 the global pre-tax subsidy stood at nearly $60 billion and that by mid-2008 this subsidy had increased to $520 billion (or 0.7 per cent of global GDP). If the optimal tax for fuel is taken as $0.40 per liter, the corresponding global tax-inclusive subsidy for 2008 is estimated at almost 1,210 billion in mid-2008 or to 1.6 per cent of global GDP.[44] A considerable part of these subsidies or deferred tax revenues are from Asian countries. Making driving cheap raises the unsustainability of the sector through additional mileage which translates in more emissions, congestion and traffic deaths. At the same time, it denies the government access to finance which could be used to transform the transport sector and put it on a more sustainable development trajectory.

[44] D. Coady, R. Gillingham., R Ossowski., J. Piotrowski, S. Tareq,, and J. Tyson, "Petroleum Product Subsidies: Costly, Inequitable, and Rising" (IMF Staff Position Note, SPN 10/05) (2010).

Multilateral and bilateral development banks in Asia contribute from $10-15 billion per year to the transport sector.[45] While this pales in comparison to the financing mobilized by the countries themselves, it does make it possible to assist Asian countries in developing successful demonstration projects and their replication as well as their scaling up through the development of enabling policies and institutional capacities. The chances that MDBs are taking up that role are increasing through the adoption of enabling policies by MDBs which aim to redirect transport funding. For example, ADB adopted in 2010 the Sustainable Transport Initiative – Operational Plan which calls for a reduction of funding for road construction while increasing support for urban transport and railways and for an increased mainstreaming of sustainability concerns (e.g., climate change and road safety) in all of its transport operations.[46]

NGOs have been instrumental in increasing the funding for bus rapid transit (BRT) schemes through their support to establish a number of best practices, especially in China and in India.[47]

4.3 Funding mechanisms for Bangkok 2020 Declaration goals

Out of the twenty goals of the Bangkok 2020 Declaration, there are thirteen which could be implemented with limited additional cost compared to business-as-usual scenario. (see table 3). Financing for these thirteen goals can in many cases be realized through changes in existing funding or through reprogramming of development financing and a greater use of existing climate finance for transport. Five of the goals would require moderate additional funding which would involve the creation of new funding sources or a more radical reprioritization of available transport funding. Only two goals (high quality public transport; sustainable intercity modes for passengers and freight) require substantial upfront additional funding, which if carried out at scale would require a comprehensive restructuring of transport funding.

Out of the twenty goals there are only few where the responsibility for funding would be solely the task of government and all of these consist of goals which only require limited additional funding which can be fairly easily accomplished provided governments are committed to sustainable transport. For the majority of the other goals, governments can either fully or partially transfer the costs of implementing these goals to users of services (e.g., in the case of annual vehicle inspections, improved fuel quality or traffic demand management) or to private sector developers (e.g., in the case of land development, non-motorized transport (NMT), public transport development). For this approach to work it is important to have predictable

[45] This includes Agence Française de Développement, ADB, European Bank for Reconstruction and Development, JICA, and the KfW Entwicklungsbank of Germany.
[46] See for more details http://www.adb.org/documents/policies/sustainable-transport-initiative/default.asp?p=transprt
[47] See http://www.itdp.org/index.php/our_work/detail/guangzhou/ for a description of the ITDP-facilitated Guangzhou BRT and http://www.itdp.org/index.php/our_work/detail/ahmedabad/ of the ITDP-facilitated Ahmedabad BRT. Both have received several international rewards for excellence.

and transparent regulatory frameworks in place which are combined with comprehensive public information campaigns which explain the benefits of re-orientation of funding of transport infrastructure and services. In those cases where it is possible to adopt regional approaches, e.g., in the case of ASEAN, this will help to avoid unfair competition between countries and a race to the bottom in terms of environmental standards.

Table 4. Financing of the Bangkok 2020 Declaration: Goals

	Scale of Financing Required Compared to Business as Usual 1 (lowest)-5 (highest)	Source of Investment	Alternative Funding Mechanisms Compared to Regular Government Funding by Local and/or National Governments
1) Integrate land-use and transport planning, processes and related institutional arrangements at the local, regional, and national levels	1	• Government	• Surcharge on development fees for private developers to cover any additional cost of integrated planning
2 Achieve mixed-use development and medium-to-high densities along key corridors within cities through smart growth policies	3-4 Cost of development might increase, overall cost of transport infrastructure decreases	• Land-developers, project developers	• Land-value capture
3 Information and communications technologies (ICTs), such as internet access, teleconferencing, and telecommuting	1-2	• Private sector • Government (development of ICT infrastructure)	• User fees charged through auctioning of licences
4 Non-motorised transport (NMT) components in transport master plans and prioritize transport infrastructure investments to NMT	3	• Government • Project developers	• Fuel tax, vehicle licenses surcharge • Climate financing
5 Implement high-quality public transport services on dedicated infrastructure along major city corridors	4-5	• Government • Project developers	• Fuel tax, vehicle licenses surcharge • Climate financing
6 Transportation Demand Management			• Fuel tax, reduced fuel subsidies

	Scale of Financing Required Compared to Business as Usual 1 (lowest)-5 (highest)	Source of Investment	Alternative Funding Mechanisms Compared to Regular Government Funding by Local and/or National Governments
(TDM) measures, including pricing measures that internalize congestion and pollutant costs, measures aimed at gradually eliminating subsidies	1-2	• Users - polluters	• Congestion charging • Higher parking rates • Surcharge on registration fees for large cars • Vehicle license auctioning • Will in best case generate surplus funds which can be used for investments in public transport and NMT
7 Significant shifts to more sustainable modes for inter-city passenger and goods transport	5	• Government	• Fuel tax, reduced fuel subsidies • Congestion charging • Higher parking rates • Surcharge on registration fees large cars • Vehicle license auctioning
8 Diversify towards more sustainable transport fuels and technologies	3-4	• Industry • Users	• Climate finance • Transfer possible fuel subsidies to "cleaner" fuels and technologies
9 Progressive standards for fuel quality, fuel efficiency, and tailpipe emissions	0-2	• Industry • Users	• In case of economic pricing of fuels costs of cleaner fuel to be passed on to consumer • Incentives for cleaner vehicles to be covered from disincentives on "dirty" technologies
10 Annual vehicle inspection and maintenance (I/M)	1-2	• Private sector • Users	• PPP under which investment and operating costs to be covered by Inspection fee
11 Intelligent Transportation Systems (ITS), such as electronic fare and road user charging systems, transport control centres, and real-time user information	2-3	• Government • Users	• Efficiency gains for users • Charges to cover investment costs of road user charging
12 Improved freight transport efficiency through policies, programmes, and	3	• Private sector	• Efficiency gains for

	Scale of Financing Required Compared to Business as Usual 1 (lowest)-5 (highest)	Source of Investment	Alternative Funding Mechanisms Compared to Regular Government Funding by Local and/or National Governments
projects on freight vehicle technology, fleet control and management systems, and logistics and supply chain management			private sector
13 Zero-tolerance policy with respect to roadway safety	2	• Government • Auto industry	• Allocate part of vehicle registration fee
14 Monitoring of the health impacts from transport emissions and noise	1	• Government	• Surcharge on fuel
15 Establish progressive and enforceable air quality and noise standards and mandate monitoring and reporting	1	• Auto industry	• No or very limited additional costs
16 Mitigate the causes of global climate change and to fortify national energy security, and conduct a full inventory of all GHGs emitted from the transport sector	1-2	• Auto industry • Government	• Costs for mitigation included under other goals • Inventory costs are limited
17 Adopt social equity as a specific design criteria in the development and implementation of transport initiatives	1-2	• Government • Private sector developers	• Absorb in total project costs
18 Create innovative financing mechanisms for sustainable transport infrastructure and operations, including consideration of carbon markets, parking levies, fuel pricing, time-of-day automated road user charging, and PPPs such as land value	1	• Government	• Mostly transaction costs which will be compensated by additional revenues

	Scale of Financing Required Compared to Business as Usual 1 (lowest)-5 (highest)	Source of Investment	Alternative Funding Mechanisms Compared to Regular Government Funding by Local and/or National Governments
capture			
19 Ensure wide-spread distribution of information and awareness on sustainable transport to all levels of government and to the public	1	• Government, NGOs	• Surcharge fuel
20 Develop dedicated and funded institutions that formally address sustainable transport and land-use policies and implementation	1	• Government	• Reallocation of government spending

4.4 Conclusions on financing the implementation of the Bangkok 2020 Declaration

While the financing needs for the implementation of the Bangkok 2020 Declaration are considerable, it is believed that its full costs are actually lower than the business-as-usual scenario to provide transport infrastructure and services to respond to, and enable, economic and social development of the Asian region. Asia is well placed because it is at the moment still not as urbanized as parts of the world and a large part of the urban infrastructure has not yet been created. This makes it still possible to opt for more sustainable and low carbon options.

The challenge in Asia is therefore not just the generation of financial resources for infrastructure development, but as much that such financial resources are channelled to the right transport objectives. This will require the establishment of new financing structures to support local governments and private sector organizations in taking up an active role in the provision and operation of passenger and freight transport services. Regulatory frameworks are required which clearly describe the responsibilities of private sector developers and users of transport services in establishing environmentally sustainable transport. Governments should make creative use of the sizeable assistance that development agencies provide to the transport sector in Asia and ensure that such assistance is not limited to individual projects but rather for system change by combining assistance for demonstration projects with assistance for strengthening policies and institutional capacities.

Governments are encouraged not to consider any of the goals of the Bangkok 2020 Declaration in isolation, but rather to implement it as an integrated and interrelated set

of goals whereby some of the goals aim to build institutional capacity, others aim to change the behaviour of transport users and a third set of goals aims to develop a different and more sustainable type of transport infrastructure.

5. Measurement of the Implementation of the Bangkok 2020 Declaration

For the Bangkok 2020 Declaration to be effective, it will be necessary to develop a monitoring framework which can help monitor the regional implementation of the twenty goals in the period up 2020 which has been defined as the end date of the Bangkok 2020 Declaration. It is imperative that a monitoring framework for the Bangkok 2020 Declaration reflects the non-legal and non-binding nature of the EST process which has been so successful in bringing different countries in developing Asia together and to forge the consensus on environmentally sustainable transport as articulated in the Bangkok 2020 Declaration.

5.1 Current monitoring framework for the Bangkok 2020 Declaration

The Bangkok 2020 Declaration contains twenty goals which are a diverse mix of desired impacts, suggested policies and policy instruments, or recommendations on capacity building. The twenty goals do not contain any quantification apart from the reference that these are goals for the period 2010-2020.

The main text of the Bangkok 2020 Declaration makes no reference to the arrangements for the monitoring of the goals agreed upon in the Bangkok 2020 Declaration. The Annex on "Measuring Progress on the Bangkok 2020 Declaration for 2020" however states that this Annex "outlines the type of performance indicators that countries may consider in achieving a successful EST strategy". It goes on to state that: "The Bangkok 2020 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." Finally, it states that: "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."

The Meeting Summary of the Fifth Regional EST Forum[48] talks in general terms about the need for data and indicators to measure and assess progress under objectives of sustainable transport. Special concern is expressed about the quality of data. No indication is provided on the specific role of the EST Forum in applying the indicators listed in Annex 1 to the Bangkok 2020 Declaration or whether there will be any reporting, voluntary or compulsory, by members of the EST Forum. "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

[48] See http://www.uncrd.or.jp/env/5th-regional-est-forum/doc/Meeting Summary_5th EST.pdf

of those indicators as they deem fit". It is understood however that countries will self-report the available data at the next EST Forum. UNCRD has initiated a consultancy which will be conducted from August to December 2011 to develop a background paper and national summaries on data and indicators for sustainable transport under the Bangkok 2020 Declaration. These national summaries will be made based on a survey of EST member countries.

The 100 indicators in Annex 1 are divided over four main categories: (a) Avoid Strategy (3 sub-strategies and 14 indicators); (b) Shift Strategy (4 sub-strategies and 32 indicators); (c) Improve Strategy (5 sub-strategies and 15 indicators); and (d) Cross-cutting strategies (8 sub-strategies and 39 indicators).

Table 5. Strategies, Sub-strategies and Indicators in the Bangkok Declaration

Strategies/Sub-strategies	**No. of Indicators**
A. Avoid Strategy *Meta Indicator: Change in vehicle kilometres travel per person over time at the metropolitan and national levels*	***16 indicators***
Integrated Land Use-Transport Planning	2
Mixed Use Development	7
ICTs	7
B. Shift Strategy *Meta Measure: 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)*	***32 indicators***
NMT	12
Public Transport	7
Transport Demand Management	7
Inter-City Passenger and Goods Transport	6
C. Improve Strategy *Meta Measure: Fuel efficiency levels of passenger and freight fleets*	***15 indicators***
Cleaner Fuels and Technologies	2
Standards	3
Inspection and Maintenance	4
Intelligent Transport Systems	3
Freight	3
D. Cross Cutting Strategies *Meta Measure: none*	***39 indicators***
Safety	3
Health	3
Air Pollution and Noise	6
Climate Change and Energy Security	3
Social Equity	7
Finance and Economics	9
Information and Awareness	2
Institutions and Governance	6
Total	***100 indicators***

The sub-strategies largely follow the twenty voluntary goals from the Bangkok 2020 Declaration. The indicators are a mix of impacts, policies, policy instruments, financial allocations, and capacity initiatives. At the same time, the indicators are a mix of urban and national level indicators or are geographically not specified. Considering that the EST Forum process of which the Bangkok 2020 Declaration is an outcome is a regional process, it could also be imagined that monitoring of the Bangkok 2020 Declaration be conducted at the regional level. There is no indication, however, that this is being considered.

There is considerable level in detail. For example, for air quality there are indicators related to standards, monitoring, air quality levels, health impacts, and economic costs of pollution. On the other hand, for Climate Change and GHG emissions the main emphasis is on participation of the transport sector in carbon financing and no indicators are suggested to measure GHG emissions from transport or to assess the vulnerability of transport sector to climate change.

No assessment has been made of which indicators are already assessed on a regular basis, or whether the data required for monitoring the 100 indicators are available in the majority of countries that are part of the EST Forum.

Following the EST Forum meeting in July 2010 where the Bangkok 2020 Declaration was adopted, an informal proposal on monitoring was circulated by one of the EST Forum experts. The proposal called for annual survey among the signatories of the Bangkok 2020 Declaration, the results of which would be reported at the next annual EST meeting. The survey would assess: (a) availability of transport statistics; (b) list EST targets; (c) give overview of the EST Programme, (d) describe EST strategy, (e) assess capacity for multi-modal planning, and (f) list engagement in professional associations.

Table 6. Outline of Annual Monitoring Framework of the Bangkok 2020 Declaration

Country	Statistics	Targets	Programs	EST Strategy	Multi-modal Planning	Professional Associations
Afghanistan						
Bangladesh						
Bhutan						
Cambodia						
China						
India						
Indonesia						
Japan						
Republic of Korea						
Lao PDR						
Maldives						
Nepal						
Pakistan						
Philippines						
Singapore						
Sri Lanka						
Taiwan Province of China						
Thailand						

Country	Statistics	Targets	Programs	EST Strategy	Multi-modal Planning	Professional Associations
Viet Nam						

This matrix summarizes the current status of EST-related policy and programme development for participating countries. Note, status should be summarized in a few words or with a letter grade from A (best) to F (worst), or NA for Not Appropriate.

The challenge with this framework is that it is somehow divorced from the themes and indicators in the Bangkok 2020 Declaration.

5.2 Current status quo of transport data and EST indicators in developing Asia

The EST Forum currently does not have the resources to initiate and maintain a large-scale regular monitoring and reporting campaign for the Bangkok 2020 Declaration. It will have to depend, therefore, to a large extent on existing data and indicator collection capacity in countries participating in the EST Forum and on other groups and initiatives that collect or synthesize transport-related data in Asia and the Pacific.

The CAI-Asia study on "Transport Data in Asia," which was conducted on behalf of ADB, includes a detailed assessment of transport data for eight Asian countries, namely, China, India, Indonesia, Nepal, Philippines, Pakistan, Sri Lanka, and Viet Nam.

The study aimed to:

a) Review the data structure and related guidelines
b) Identify the following for each data parameter:
   - Institutional responsibility for data collection, management and dissemination;
   - Frequency and reliability of data collected;
   - Existing quality assurance mechanisms employed by institutions in data collection; and
   - Current budgets in collecting existing data.

Table 5, which presents a summary of the results of the study, indicates that there are considerable differences between the types of information which are collected on a regular basis. Very little is known, for example, about NMT while a great deal of information exists on rail infrastructure and rail travel.

Table 7. Proportion of Data Available, by Mode and Attributes Group in Selected Countries in Asia

MODE	Transport Fuel	Vehicle Type	Spatial Scope	Purpose	Vehicle Property	Operation	ALL ATTRIBUTES
Walk	-	-	13%	13%	-	-	**13%**
Bike	-	-	8%	13%	26%	-	**16%**
Road	64%	79%	92%	44%	66%	63%	**68%**
Rail	71%	81%	83%	34%	88%	50%	**68%**
Pipeline	100%	-	75%	-	69%	19%	**63%**

MODE	Transport Fuel	Vehicle Type	Spatial Scope	Purpose	Vehicle Property	Operation	ALL ATTRIBUTES
Conveyor	67%	-	38%	-	50%	13%	**39%**
Water Domestic	57%	75%	88%	-	71%	50%	**68%**
Water International	57%	88%	88%	-	88%	50%	**74%**
Air Domestic	100%	88%	100%	-	75%	69%	**72%**
Air International	100%	88%	88%	-	88%	63%	**71%**
ALL MODES	**75%**	**83%**	**67%**	**26%**	**69%**	**47%**	**55%**

Considering that the CAI-Asia study focused on the larger countries in Asia with relatively well developed data collection and analysis capabilities, it is probably reasonable to assume that other smaller countries in Asia have lower transport data capacities.

The results of the CAI-Asia study are supported by the observations of the Partnership for Sustainable, Low Carbon Transport in a background paper for CSD 18.[49]

a) Problem areas are: (a) Reliable up-to-date origin/destination data for goods and passengers; (b) Differentiating between total number of vehicles registered and the number of vehicles which are actually operating on the road; (c) Reliable activity data, both in terms of passenger kilometres and ton kilometres; (d) Reliable assessment of NMT share (pedestrians and cyclists);
b) Fragmented responsibility for collection of different types of data and the absence of an organization with a mandate and organizational capacity to integrate different data sets;
c) Emphasis is still more on the collection of transport data for incremental expansion of existing systems than on the use of transport data for redesigning transport policy, urban development or environmental management. The rapid development of the transport sector in many cases has created a time-lag in the availability of data which hampers policy development; and
d) Donor-funded transport data initiatives and data collection through various transport projects using government funds are often not integrated with domestic transport data collection mechanisms or do not serve an ongoing transport management function.

All of this does not bear well for the likelihood that participating countries in the EST Forum will be able to generate progress reports that include baseline data for the 100 indicators as well as quantified progress reports, let alone in a somehow standardized format which would allow for comparison among countries.

The EST Forum might be able to benefit from a new transport data initiative by the SLoCaT Partnership which is bringing together a number of organizations working on transport data under the Global Transport Intelligence (GTI) Initiative.[50] Designated members of the GTI Initiative are: ADB, CIA-Asia, GIZ, IDB, International Energy Agency (IEA), International Road Federation, International Transport Forum,

[49] See http://www.un.org/esa/dsd/resources/res_pdfs/csd-18/csd18_2010_bp11.pdf
[50] See http://www.slocat.net/key-slocat-prog/466

International Public Transport Association, Latin American Development Bank. and UN DESA.[51]

In the short term, the GTI initiative will combine efforts of different organizations working on transport data and indicators in developing countries with the aim of developing a joint recurrent process of collecting, documenting and analysing national- level transport data and indicators with the understanding that this can be followed in the medium term by joint outlook studies.

The scope of GTI corresponds well with suggested indicators for the Bangkok 2020 Declaration and although less detailed in nature than some of the Bangkok 2020 Declaration indicators includes transport infrastructure, transport services, and impacts (road safety, air pollution, GHG emissions). GTI will cover both passenger and freight transport and will focus on land (road and rail), inland water, and domestic air transport. As initial steps, it is planned to create a more complete overview of existing data collection; based on the already existing International Transport Forum glossary develop a joint glossary of terms and definitions for developing country transport data and indicators; and raise awareness on the importance of having good transport data in support of transport planning.

5.3 Outlook of measuring progress on the implementation of goals of the Bangkok 2020 Declaration

In developing an effective approach for the measuring of progress on the implementation of the goals of the Bangkok 2020 Declaration, it is important to consider the following criteria for future data and indicators:

a) *Comprehensive* – Indicators should reflect various economic, social, and environmental impacts, and various transport activities (such as both personal and freight transport).
b) *Accurate* – Data collection practices should reflect high standards to insure that information is accurate and consistent.
c) *Comparable* – Data collection should preferably be standardized so the results are suitable for comparison between various jurisdictions, times, and groups. Indicators should be clearly defined.
d) *Accessible and transparent* – Indicators (and the data they are based on) and analysis details should be available to all stakeholders.
e) *Cost effective* – The suite of indicators should be cost effective to collect.

In developing a monitoring framework for the Bangkok 2020 Declaration, it might be useful to distinguish between: Impacts, Outcomes, Policies, and Governance/ Institutions. Whereby:

- Impacts are a translation of the vision on EST expressed in the Bangkok 2020 Declaration. The impacts can be subdivided in economic, environmental, and social;

[51] Another relevant group on transport data for Asia currently not yet a member of the GTI initiative is ESCAP, see http://www.unescap.org/ttdw/data/index.aspx

- Outcomes describe the changes in transport structures required to achieve the described impacts. Examples of indicators are Land-use Patterns, Energy Intensity of Transport Sector, Passenger and Ton Kilometres, and Modal Split;
- Policies are the collection of measures to be undertaken to accomplish changes in structure of the transport sector. They can be subdivided in Avoid, Shift, Improve policies;
- Governance/institutions refer to the collective of stakeholders, their capacity, their interplay and their financial means to develop, implement, and monitor policies. These can be subdivided in indicators on data, institutions, and financing.

The EST Forum process through a series of successive statements (Aichi, Seoul, and Bangkok) has increasingly defined and refined the Impacts and Outcomes. More recently, the Bangkok 2020 Declaration has emphasized the governance/institutions level and the policies which would be required to realize the outcomes and the impacts.

Figure 3. Tentative Monitoring Framework of the Bangkok 2020 Declaration

Impacts:	**Economic:** • *Economic growth* • *Financial sustainability*	**Social:** • *Equitability in Access to work, education and health based on income, gender* • *Safety of transport systems*	**Environmental:** • *Air quality* • *Climate change*	**REMARKS** EST Forum can monitor trends on basis of various existing sources

Outcomes	• Land-use Patterns • Energy Intensity of Transport Sector • Passenger and Ton Kilometers • Modal Split	**REMARKS** EST Forum can monitor trends on basis of various existing sources

Policies	**Avoid:** • *Transit-oriented development* • *Mixed- use development*	**Shift:** • *Expansion and/or improvements in public transport* • *Expansion and/or improvements in NMT* • *Expansion and/or improvements in Green Freight*	**Improve:** • *Improvements in fuel and vehicle technology*	**REMARKS** Proposed as focus of voluntary reporting under the EST process

Governance/ Institutions	**Data:** • *Availability* • *Quality*	**Institutions:** • *Mandates* • *Budget* • *Capacity*	**Financing:** • *Budget* • *Financial instruments* • *Access external sources*	**REMARKS** Proposed as focus of voluntary reporting under the EST process

The monitoring of impacts and outcomes requires extensive information collection on the structures of the transport sector. This can best be accomplished if the EST Forum

works together with other groups and organizations that on a regular basis collect and analyse this type of data. The planned GTI initiative would be a very relevant initiative for the Asian EST Forum, especially if ESCAP joins the GTI initiative.

The monitoring and reporting on policies and governance/institutions can be done on a periodic basis, whereby use is made of periodic questionnaires. Alternatively, the EST Secretariat could also decide to collect this type of information on an ongoing basis from secondary sources and use questionnaires and surveys for validation. This could reduce the frequency and scope of questionnaires and surveys. The emphasis of the monitoring, or self-reporting, of the Bangkok 2020 Declaration by the EST Forum members could be on these two areas. These are directly under their control and require the least amount of resources to monitor.

The question on what is the best way to monitor the implementation of the Bangkok 2020 Declaration is closely linked to the – (a) future of the EST Forum and process which was described and analysed in section 3.2; (b) cooperation of regional and sub-regional bodies such as ESCAP, ASEAN, and SACEP; (c) cooperation of bi-lateral and multi-lateral donor agencies, in particular the development banks such as ADB and World Bank in aligning their transport investments with the goals of the Bangkok 2020 Declaration. With regard to monitoring the progress made in implementing the Declaration, an important decision will be whether reporting should be done on a regional or a national basis.

6.0 The Way Forward ~ Moving towards a Green Economy

Since the 2002 Johannesburg World Summit on Sustainable Development (WSSD) the realization has grown that the current rapid unrestrained growth in private motorization is not sustainable. While additional transport infrastructure and services are required to create better access to jobs, markets, schools, and health facilities to promote economic and social development, the manner in which transport has grown in recent years is actually undermining the very economic and social progress it is supposed to enable. Each year millions of people die or are unable to continue working or schooling because of road accidents or illnesses related to air pollution from vehicles. People in emerging and developing economies are disproportionately affected and within these countries it is the poor who are most affected. The economic cost of air pollution, road accidents and worsening congestion in many of the cities in the developing world is now believed to range from 5-10% of GDP[52]. Concern about the sustainability of transport in emerging and developing economies has deepened because of the potential carbon foot print of transport in these countries. Although current per capita transport emissions in developing countries are relatively low compared to OECD countries, close to 90% of the increase of global transport related GHG is expected to take place in developing countries, mostly from private vehicles and from freight.

[52] See Dalkmann,Holger, Sakamoto,Ko et al.(2011), *Transport: Investing in energy and resource efficiency* ,p.404, http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx

At the same time, by 2050, world population is projected to reach 9.1 billion with 99%of global population growth is projected to occur in developing nations. By 2050, around 70% of the world population is projected to live in urban areas, and for Asia, the urban population will grow to 2.2 billion by 2020. With 80% of GDP coming from cities it is clear that cities are the most powerful economic engines in the world. This makes the transformation of mega-cities to sustainable economic development a critical challenge in the 21st century. Cities now account for 75% of energy consumption and 75% of carbon emissions (Clinton Foundation, 2009). Considering that bulk of transport will be in cities, the transport policy decisions take by Mayors and other city leaders today will have vast implications in the overall sustainability of the urban development.

Promoting green transport, at the same time, will enable cities and countries to leapfrog towards a sustainable path, rather than repeating the same mistakes made by early industrialized countries. The strategic approaches and goals outlined in the *Bangkok 2020 Declaration* set a clear roadmap for Asian countries and cities for a more sustainable future.

Though the internationally community is yet to come up with a concrete definition of the green economy, it is clear that such a definition will be inherently low carbon, resource (energy) efficient and socially inclusive. In this regard, Bangkok 2020 Declaration offers a range of possible solutions for cities and countries to decouple car usage and the associated environmental damage from future economic growth, thus contributing towards a green economy. In a green economy, mobility will be reduced through better city design, planning, and environmental degradation will be mitigated through provision of more efficient public transport, dedicated NMT facilities as an integral part of public transport planning and development, and cleaner vehicles and fuels.

Thus, the pre and post Rio+20 processes offer a significant opportunity to not only addresses the objectives and goals under the Bangkok 2020 Declaration, but also provides a unique opportunity to address sustainable transport or EST as an essential element in a green economy.

Annex: Proposed Indicators for the Bangkok 2020 Declaration

A. "Avoid" Strategies

- Meta Indicator: Change in vehicle kilometres travel per person over time at the metropolitan and national levels

Integrated Land Use-Transport Planning

- 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

Mixed-Use Development

- 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

Information and Communications Technologies (ICT)

- 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

- Meta Measure: 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)

Non-Motorized Transport

- Number of cities with NMT specifically highlighted in the city's integrated transport master plans
- Note the existence of national and local policies requiring or practices of drop curbs at interface between footpaths and intersections
- Note the existence of national and local policies mandating or practises of using 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

Public Transport

- Number of cities with trunk bus corridors operating on dedicated busway lanes in the median of the roadway (BRT)
- Number of kilometres of dedicated, median busways (BRT)
- 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

Transportation Demand Management

- Number of cities or areas utilizing 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

Inter-City Passenger and Goods Transport

- 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

C. "Improve" Strategies

- Meta Measure: Fuel efficiency levels of passenger and freight fleets

Cleaner Fuels and Technologies

- 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

Standards

- 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

Inspection and Maintenance

- 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

Intelligent Transportation Systems

- 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

Freight Transport

- Quantify improvements in freight vehicle fuel efficiency
- Quantify changes in freight vehicle types
- Quantify network efficiency gains

D. Cross Cutting Strategies

Safety

- Reductions in number of traffic accidents
- Reductions in number of transport-related injuries and deaths
- Adoption of a zero-accident policy framework

Health

- 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

Air Pollution and Noise

- 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 (NOx), sulphur oxides (SOx), 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

Climate Change and Energy Security

- 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

Social Equity

- 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

Finance and Economics

- 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

Information and Awareness

- Number of EST-related publications
- Number of outreach and promotional efforts on EST

Institutions and Governance

- 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 NMT and number of cities with local government units dedicated to NMT 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