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**INSTITUTIONAL ARRANGEMENTS IN REALIZING NEXT GENERATION
SUSTAINABLE TRANSPORT SYSTEM**

(Background Paper for Plenary Session 9 of the Provisional Programme)

Final Draft

This background paper has been prepared by Mr. Rob Pearce, for the Seventh Regional EST Forum in Asia. The views expressed herein are those of the author only and do not necessarily reflect the views of the United Nations.

**Seventh Regional EST Forum in Asia & Global Consultation on
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**Institutional Arrangements in Realizing Next Generation Sustainable
Transport Systems**

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1. Introduction

The need to develop environmentally sustainable transport (EST)² in the Asian region is a key policy priority to ensure increases in public transport and non-motorised transport (NMT) modal share. Current transport trends suggest that without a change in the way public transport is planned for and provided, it may be difficult to achieve sustainable development in the Asian region, as well as globally. Accordingly, the design and composition of institutional arrangements to facilitate decision making for EST will be a crucial factor in determining the success of efforts in the region to achieve EST.

There is a well-developed set of goals and objectives in Asia for EST, embodied in the Bangkok Declaration 2020, which have been developed in parallel with global initiatives in the area of sustainable development. Countries and cities may be at varying degrees of translating the goals and objectives into a concrete vision for their own national and/or city transport policies. This may be due, in part, to a number of institutional challenges facing countries and cities in the region.

It is possible to devise a set of principles to guide the development of appropriate institutional arrangements for next generation sustainable transport systems, based on best practice both in the region and elsewhere. These principles are not exhaustive or complete, but are provided to facilitate discussion and debate. Further, there is no one fit or structurally superior combination of institutional arrangements. Instead specific and appropriate arrangements can be devised by considering the application of these principles in their regional contexts.

In summary, section 2 of this paper outlines some of the transport trends affecting sustainable development in the Asian region. Section 3 provides an overview of the policy framework for EST established globally and in the Asian region. Finally, section 4 outlines set of principles for consideration in developing appropriate institutional arrangements for facilitating EST outcomes. It should be

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² For the purpose of the Background Paper, the following definition of EST is being used: "Generally, EST is considered as transport that meets the needs of the present without preventing future generations from meeting their needs. Although there is no single, commonly held definition of EST, the concept of EST is centered on the transportation system and transportation activity that meets social, economic and environmental objectives."

noted that the paper does not provide a detailed description of how to set up integrated transport authorities.³ Instead it focuses on issues of integration between and within levels of government to achieve greater co-ordination in relation to EST. It is necessary to get these overarching institutional settings in place in order to guide detailed institutional design.

2. Transport trends affecting sustainable development in Asia

Rapid urbanization is occurring in Asia. Currently, 1.6 Billion or 40% of Asian people live in urban areas and by 2030, the majority of people in Asia will live in urban areas (approximately 2.7 Billion).⁴ As cities grow, so too do the needs of their citizens for quality, affordable and sustainable transport systems, particularly in relation to public transport and NMT.

With increasing urbanization occurring in developing countries, we are seeing a concomitant rise in vehicle ownership. Disturbingly, we are also seeing a declining modal share for public transport. It is estimated that across a range of cities in the developing world, public transport is relinquishing 0.2 – 1.4 percent mode share annually.⁵ This decline in public transport mode share is reinforced by projections in particular countries in the Asia region. For example, in India, a significant decrease in public transport and a very high increase in private mode share for a number of cities is predicted on current trends.⁶

While transport is an enabler and driver of economic growth, it has social and environmental consequences. An example of this is in relation to transport related greenhouse gas (GHG) emissions. The current pattern of passenger and freight transportation in Asia is still largely based on fossil fueled motor vehicles generating serious social, economical and environmental damage.⁷ Out of the 23 % of global CO2 emissions from the transport sector, 19% of this is in Asia.⁸

Rising congestion in some Asian cities is also a significant consequence of rising levels of private vehicle ownership. Across the region cities are becoming increasingly gridlocked and the urban environment is suffering from greater levels of air pollution. It is estimated that Asia now loses between 2 to 5 per cent of the value of its GDP due to congestion.⁹ Experience and evidence from other cities, such as in Australia, suggest that without tackling traffic and congestion, significant costs will be incurred to regional and national economies. For example, in Australia it is estimated that traffic congestion will cost the Australian economy \$20 Billion AUD in lost revenue by 2020 under a “business as usual scenario”.¹⁰ Conversely, the Asian Development Bank estimates that an

³ The UITP has released a detailed guide on how to set up an Integrated Urban Transport Authority. This can be accessed at the publications section of the UITP website:

<http://www.uitp.org/publications/index.cfm>

⁴ UNCRD, 5th Regional EST Forum, Final Meeting Summary, p 2

⁵ Wright, L. and Fulton, L. (2005) Climate Change Mitigation and Transport in Developing Nations, *Transport Reviews* 25(6) page 694

⁶ http://urbanindia.nic.in/programme/ut/final_Report.pdf

⁷ UNCRD, 7th Regional EST Forum, Draft Concept Note, p 2

⁸ As above, n 7, p 3

⁹ As above, n 4, p 2

¹⁰ Moving People 2030 Taskforce (2013) Moving Australia 2030: A transport plan for a productive and active Australia, p 44

integrated Asia-Pacific region, connected by world-class environmentally friendly infrastructure, would generate \$13 Trillion USD in increased income for Asia.¹¹

While this is a small snapshot of current transport trends in Asia, it suggests that without a change in the way we plan and provide for public transport in Asia, our ability to achieve EST in the region (and globally) will be difficult. Accordingly, the design and composition of institutional arrangements to facilitate decision making for EST will be a crucial factor in determining the success of efforts in the region to achieve EST.

3. Environmentally Sustainable Transport – policy context

In order to consider the next generation of institutional arrangements for realising EST, it is necessary to review the EST policy framework that has been established globally and in Asia over recent years. This policy framework can directly inform the design and implementation of institutional arrangements at local, regional and national levels.

3.1 *The Rio+20 outcome document: “The Future We Want”*

At a global level, the General Assembly of the United Nations has endorsed the outcome document from the United Nations Conference on Sustainable Development, entitled “The future we want” (Rio + 20 document).¹² The Rio + 20 document recognises sustainable transport as a priority issue and states:

*“...transportation and mobility are central to sustainable development. Sustainable transportation can enhance economic growth and improve accessibility. Sustainable transport achieves better integration of the economy while respecting the environment”.*¹³

The inclusion of sustainable transport in the Rio + 20 document is of great significance to the public transport sector. Public transport and NMT are key elements of any sustainable transport system. The more prominent that these modes are represented and advanced in policy and decision making, the more likely it will be that EST outcomes and goals will be realised. In turn, this will affect our ability to achieve broader global goals for sustainable development, such as the Millennium Development Goals.

3.2 *Institutional aspects of the Rio + 20 document*

There are some important statements in the Rio + 20 document regarding institutional frameworks for sustainable development, which are of relevance to achieving EST. For example, the Rio + 20 document identifies the importance of institutional frameworks that integrate social, environmental and economic factors:

“The institutional framework for sustainable development should integrate the three dimensions of sustainable development in a balanced manner

¹¹ As above, n 4, p 4

¹² *The Rio+20 outcome document: “The Future We Want”* accessed at: <http://sustainabledevelopment.un.org/futurewewant.html> (A/RES/66/288)

¹³ As above, n 12

and enhance implementation by, inter alia, strengthening coherence, coordination, avoiding duplication of efforts and reviewing progress in implementing sustainable development.”¹⁴

The Rio + 20 document also recognises that the design and implementation of institutional frameworks for sustainable development should be a means by which we facilitate the achievement of sustainable development and that institutional reform is not an end in itself.¹⁵ Accordingly, the focus of any review of institutional arrangements should be on how to better facilitate the implementation of the EST policy and outcomes.

3.3 EST Forum

In parallel with the global process of reform in the area of sustainable development, the United Nations Centre for Regional Development (UNCRD) has (in collaboration with a range of partners) established the Regional EST Forum in order to promote EST within Asia. In 2010, building on the *Aichi Statement (2005)*, the EST Forum agreed on a goodwill declaration: the *Bangkok Declaration 2010 – Sustainable Transport Goals for 2010 - 2020*.¹⁶

The Bangkok Declaration embodies a well-developed set of goals and objectives for EST in Asia. It demonstrates a commitment to actions and measures for “achieving safe, secure, quick, reliable, affordable, efficient and people-centric and environmentally friendly transport in rapidly urbanizing Asia” through an *Avoid-Shift-Improve (ASI)* approach.¹⁷ The ASI approach can be summarised in the following terms:

- *Avoid* strategies involve avoiding unnecessary motorised transport through measures that eliminate the need for travel or reduce trip distances
- *Shift* strategies embody measures to promote a shift toward more sustainable modes of transport, namely public transport and NMT
- *Improve* strategies are aimed at improving transport practices and technologies to achieve greater efficiencies.

In addition to ASI based strategies, the Bangkok Declaration includes a number of *cross-cutting* strategies that cover multi-sectoral issues relevant to the achievement of EST, such as safety, health, energy, equity and financing aspects. Finally, the indicators in Annex 1 of the Bangkok Declaration provide a guiding framework for countries to measure progress in relation to the EST goals and objectives.

¹⁴ As above, n 12

¹⁵ As above, n 12

¹⁶ The *Bangkok Declaration 2010 – Sustainable Transport Goals for 2010 – 2020* accessed at: <http://www.uncrd.or.jp/env/7th-regional-est-forum/index.htm>

¹⁷ UNCRD (2010) 5th Regional EST Forum, Final Meeting Summary, p 17

3.4 Institutional aspects of the Bangkok Declaration

The Bangkok Declaration makes specific reference to institutional factors in a number of parts. These are as follows:

- *Goal 1: Formally integrate **land use and transport planning** processes and related institutional arrangements at the local, regional, and national levels*
- *Goal 20: Develop dedicated and funded **institutions** that address sustainable transport-land use policies and implementation, including research and development on environmentally sustainable transport, and promote good **governance** through implementation of environmental impact assessments for major transport projects.*

There is also a set of EST indicators regarding institutions and governance. These include:

- *Number of staff at Transport, Environment and Health Ministries dedicated to EST*
- *Human and financial resources devoted to EST at the regional and local level*
- *Structure and relationship of national, regional, and local actors involved in EST, including engagement with civic and business sectors.*

The Bangkok Declaration objectives raise some important issues for the creation of institutional frameworks for EST. As identified above, it refers to the need to integrate transport and land use planning processes at different levels of government (national, regional and local). This is sometimes described as achieving *vertical integration*. There is also a companion concept to this - *horizontal integration* - that refers to the need to achieve integration between agencies involved in transport and land use planning (and other policy areas) at the same level.

The integration of transport and land use planning considerations in the design and development of institutional arrangements is a crucial component to achieving the ASI framework adopted by the Bangkok Declaration. By developing institutional arrangements that embody integrated decision making processes for transport and land use, it could be expected that the resulting transport and land use outcomes would promote more intense urban development around transport corridors and involve greater investment in public transport and NMT projects, programs and infrastructure. In turn, this would contribute to meeting sector goals to increase the mode share of public transport and NMT, such as the UITP's mission to double public transport mode share worldwide by 2025 (known as *PT x 2*).¹⁸

The need for vertical and horizontal integration in institutional design is also clearly recognised by the United Nations in the Rio + 20 document:

¹⁸ More information on the UITP's PTx2 strategy can be found at the following website: <http://www.ptx2uitp.org/>

“We underline the need for more coherent and integrated planning and decision making at the national, subnational and local levels as appropriate and, to this end, we call on countries to strengthen national, subnational and/or local institutions or relevant multi-stakeholder bodies and processes, as appropriate, dealing with sustainable development, including to coordinate on matters of sustainable development and to enable effective integration of the three dimensions of sustainable development.”¹⁹

3.5 Consequences of a lack of integration within and between different levels of government

As identified above, vertical and horizontal integration is a key element in achieving an institutional structure that facilitates EST. However, the UNCRD highlights that in most developing countries in Asia there is a lack of institutional capacities to deal with multi-sectoral transport, environment and social issues in an integrated way.²⁰ The UNCRD also highlights that the majority of developing Asian cities have not given sufficient consideration to integration of land use and transport planning within institutional structures.²¹

A lack of vertical and horizontal integration often manifests itself in an institutional structure that comprises multiple departments and agencies, across local, regional and national levels of government, with varying degrees of control or influence over transport and land use outcomes. This situation, however, is not unusual in both the developed and developing world. Indeed, Stanley and Smith point out that the question of integration is always going to be difficult to achieve because the “transport space” is so complex, involving multiple factors including:

- the connections between transport and land use and also between transport and wider public policy areas that impact on wellbeing (eg. social policy, environmental policy);
- the wide range of modes involved;
- involvement of multiple levels of government;
- the wide range of options that are available to tackle transport problems.²²

4. Institutional Arrangements for Next Generation Sustainable Transport Systems – some guiding principles

It is possible to devise a set of principles to guide the development of appropriate institutional arrangements for next generation sustainable transport systems, based on best practice both in the region and elsewhere. There is no one fit or structurally superior combination of institutional arrangements. Instead specific and appropriate arrangements can be devised by considering the following principles in their regional contexts.

¹⁹ *The Rio+20 outcome document: “The Future We Want”* accessed at: <http://sustainabledevelopment.un.org/futurewewant.html> (A/RES/66/288)

²⁰ UNCRD, 5th Regional EST Forum, Final Meeting Summary, p 9

²¹ As above, n 20, p 9

²² Stanley, J. and Smith, A. (2013) Governance, contracting, ownership and competition issues in public transport: Looking up not down, *Research in Transportation Economics*, 39, pp 167 - 174

4.1 Achieving vertical integration: ensure that the distribution of responsibilities for transport is clear and well defined between different tiers of government.

As already identified, there will often be multiple levels of government involved in policy and decision making for transport. In some cases, this can involve up to three (and sometimes four or more) different tiers. Typically, the tiers will be comprised of a National/Federal level, a State/Provincial level and City/Local level.

In order to avoid a lack of integration and coordination (and as a matter of good governance) it is important that the responsibilities and accountabilities between levels of government are clear and transparent. The following table suggests some norms for distribution of transport responsibilities between different levels.²³

Tier/Level of government	Transport Accountabilities / Responsibilities
National	<ul style="list-style-type: none"> • National policies, strategies and programs for transport sector • Integration of transport sector policies with wider economic, planning and environmental policies • National transport legislation, including defining powers devolved to State and City levels • Matters relating to national or international transport networks • Technical regulations for vehicles, safety and the environment • Collecting and collating national transport system data • Funding: administration of national taxes and disbursement of grants and subsidies to State and City levels • Research and Development
State	<ul style="list-style-type: none"> • Regional policies, strategies and programs for transport sector • Planning and regulation of services within state/province boundaries
City/Local	<ul style="list-style-type: none"> • Strategic transport and land use planning • Transport Infrastructure (road & rail) planning and programming • Transport network and service planning • Management of roads and road use • Public transport development, management and procurement • Service delivery

Overlapping responsibilities between tiers may exist, particularly as a result of historical and contextual factors. In this instance, the consideration of governance mechanisms that ensure cooperation and provide avenues to resolves disputes is important. More formal governance mechanisms for ensuring cooperation between levels and tiers of government include Inter-governmental Agreements, Memoranda of Understanding and model/template based legislation.²⁴ Other mechanisms include the creation of ministerial fora or committees to seek agreement on issues that cross over jurisdictional boundaries.

²³ This table has been adapted from information contained in, GTZ (2004) Sustainable Transport: A Sourcebook for Policy-makers in Developing Countries (Module 1b Urban Transport Institutions), p 5, as well as the author's own opinions and research.

²⁴ Template and/or model legislation is often used to ensure consistency in legislative provisions across different jurisdictions. Template legislation is simply the same Act enacted in the different jurisdictions/tiers. Model legislation involves one jurisdiction/tier enacting a "model" Act, followed by each jurisdiction/tier enacting their own equivalent Act.

In some cases, it may be appropriate to establish dedicated ministries and departments at a national level that are responsible for the co-ordination of transport outcomes across cities and regions. The Land Public Transport Commission (SPAD) in Malaysia, established under the *Land Public Transport Act 2010*, is one example of this in relation to public transport outcomes. SPAD, which comes directly under the purview of the Prime Minister, is responsible for policy, planning and regulatory aspects of train, bus and taxi services as well as road- and rail-based freight transport. It plays a central and integrating role in improving road and rail-based public and freight transport across the Peninsula Malaysia region.

4.2 *Achieving horizontal integration: ensure that the distribution of responsibilities for transport is clear and well defined within each tier of government.*

Within each tier of the government there will also be the potential for a lack of coordination and integration between the bodies and agencies set up to deliver transport outcomes. Accordingly, it is necessary to ensure that the responsibilities and accountabilities within a tier of government are similarly clear and well defined. In this regard, the most efficient way of achieving horizontal integration is through the creation of a single integrated transport agency or authority with a clear mandate in relation to transport outcomes at that level.

In the Asian region, the creation of the Land Transport Authority (LTA) in Singapore is a good example of this approach (although it does have the advantage of being a city-state). The LTA is an integrated transport authority with a wide functional scope formed by the merger of four government agencies, namely the Registry of Vehicles, the Road Transport Division of Public Works, the Land Division Ministry of Communications and the Mass Rapid Transit Corporation.²⁵ The LTA is recognised as an agency with a high level of integration with a strong ability to influence EST outcomes. In part, this is because it embraces not only road transport, but also the mass transit system, the registration and licensing of the private vehicles, and administering the private vehicle quota system and electronic road pricing.²⁶

Another example of integrated transport agency with responsibility across a single tier is Transport for London (TfL). Like the LTA, TfL has responsibility for both public transport and road network management within a defined jurisdictional boundary.

In the absence of a single integrated authority, the task of achieving an integrated approach to transport policy may be more challenging. In this case, it is necessary to ensure that each agency at a particular level is not pursuing multiple objectives that are inconsistent, particularly in relation to EST outcomes.

Legislation can be an effective tool to achieve integration and ensure an alignment of goals and objectives between transport agencies at the same level. An example of a legislative approach is the *Transport Integration Act 2010* in Victoria, Australia. In Australia, public transport and road transport is seen

²⁵ GTZ (2004) *Sustainable Transport: A Sourcebook for Policy-makers in Developing Countries* (Module 1b Urban Transport Institutions), p 21

²⁶ As above, n 25, p 3

primarily as a responsibility of State governments, with local governments also playing a key role in road system management. Legislation defines the functions, powers and charters of these transport agencies.

Prior to the development of the *Transport Integration Act* in Victoria, there were multiple road and public transport agencies that were pursuing different and sometimes competing objectives under various pieces of legislation. The *Transport Integration Act* sought to unify these bodies (including the Department of Transport, VicRoads and the Director of Public Transport) under the one Act. It did this by defining a vision, set of objectives and decision-making principles for integrated and sustainable transport and made every transport agency in the State subject to the framework. The effect of the framework is that the decision makers for transport in Victoria must have regard to the same set of objectives and decision-making principles when undertaking their functions and powers in relation to transport.²⁷

4.3 Ensure integration between transport and land use agencies

As already identified, the integration of transport and land use planning is a critical factor in achieving EST outcomes and is a specific objective contained in the Bangkok Declaration. Yet, it is common to see transport agencies operating separately from land use agencies.²⁸

Where there are multiple bodies involved in transport and land use, legislation can again be used as a mechanism to achieve greater integration between these agencies. The *Transport Integration Act* in Victoria, Australia demonstrates one way of achieving a greater level of integration. Under that Act, certain land use planning bodies are defined as “interface bodies”. An interface body is required to have regard to the transport system vision, objectives and decision making principles when making decisions under their own empowering legislation that are likely to have a significant impact on the transport system. An example of an interface body is a City or Municipal Council that is determining a strategic plan under the relevant planning legislation for that area.²⁹

In the absence of legislation to compel transport and land use agencies to achieve integrated decision making, it may be possible through organisational or institutional design to achieve an integrated approach to transport and land use. One obvious mechanism is to combine the functions of transport and land use planning in the one agency or ministry. The benefits from an integration perspective would appear to be significant, but it may not always be practical or easy to sustain this level of integration, particularly as governments change over time. As Stanley and Smith note:

“The layers across which integration should ideally be sought, pose significant difficulties in institutional design. It is thus common,

²⁷ More information on the policy framework under the Transport Integration Act 2010 can be found at <http://www.transport.vic.gov.au/legislation/transport-integration-act/applying-the-transport-integration-act>

²⁸ Stanley, J. and Smith, A. (2013) Governance, contracting, ownership and competition issues in public transport: Looking up not down, *Research in Transportation Economics*, 39, pp 167 - 174

²⁹ More information on the operation of the interface body mechanism can be found at the following website: <http://www.transport.vic.gov.au/legislation/transport-integration-act/land-use-planning-under-the-transport-integration-act>

internationally, to see transport operating separately from land use agencies, only to be jointed to such agencies, to seek to enhance integration, and then subsequently separated again.”³⁰

In light of the real possibility of regular change in agency structures over time, the existence of robust and endurable legislative frameworks to ensure integration becomes increasingly important.

4.4 *Ensure integration between policy areas that affect and are affected by transport*

EST outcomes *affect* and are *affected by* a range of outcomes in other policy areas, in addition to land use planning. This is recognised in the Bangkok Declaration with the inclusion of cross cutting goals and objectives relating to transport’s impact on safety, health, air quality and noise, climate change, energy security and social equity.

The design of institutional arrangements should have sufficient regard to the connections between the range of policy areas that affect transport outcomes (and vice versa). This is sometimes referred to as achieving “joined up thinking”.³¹

Some options for achieving policy coordination between different policy areas include:

- Establishing integrated policy units within central government agencies (at various tiers) that are tasked with the job of co-ordinating policy advice to Cabinet or other decision making bodies on a range of factors that may be relevant to a particular issue (including transport).
- Seconding or recruiting staff with technical skills in transport policy into health, education or environment departments and ministries to ensure that policy proposals emanating from these agencies have sufficient regard to transport considerations.
- Including transport related objectives, functions and powers in legislation relating to the establishment and regulation of agencies and bodies that affect transport outcomes.

4.5 *Involve the Private Sector as a partner in delivering EST*

While the focus of this paper has been mainly on government institutions, it also necessary to consider the role of private sector players in achieving broader EST outcomes.

In the developing world, including in parts of Asia, a high proportion of public transport is provided by the informal sector, comprising mainly small vehicles and mini-buses. Quality is often low and the sector remains largely unregulated,

³⁰ As above, n 28, p 169

³¹ Jones, P. and J. and Lucas, K (2008) Integrating transport into ‘joined-up policy appraisal, *Transport Policy*, 7, pp 185 - 193

but fares have remained affordable without a subsidy.³² As governments increasingly consider how to regulate these services more formally, due regard should be had to ensure that institutional arrangements facilitate a smooth, equitable and orderly transition of informal services into the formal sector.

There is an opportunity to involve the private sector in the delivery of formal public transport sector services, through contracting and franchising processes. There have been recent examples of increased activity in public transport franchising and contracting in Asia, particularly in India and The Republic of Korea. In terms of EST, governments could use these processes to negotiate appropriate contractual provisions that provide incentives to private operators to contribute to EST outcomes. One example of this is in relation to key performance indicators that cover not only customer and service related measures, but also the environmental performance of services.

There is also a significant role for private sector to play in the provision of infrastructure for transport. Public-private-partnerships (PPPs) offer a model for the involvement of the private sector in the provision of urban transport infrastructure, by allocating construction and operational risks between public authorities and private sector agencies. As with franchising contracts, the negotiation of PPP arrangements allow governments the opportunity to require EST related provisions, particularly in relation to the efficiency and environmental performance of transport infrastructure.

4.6 *Ensure adequate skills base to support institutional framework*

There is often a shortage of professional skills and resources to fulfill the necessary technical roles in transport institutions.³³ These roles include policy analysts, economists, engineers, statisticians, and (increasingly) project and contract management professionals. This suggests the need to look at measures to increase the supply of trained professional staff to resource transport bodies. These measures include increasing training opportunities and university places for relevant disciplines, as well as ensuring that existing skills and resources are being used to their best capacity and fit.

4.7 *Ensure adequate funding mechanisms to support the institutional framework*

Appropriate funding arrangements are crucial to underpin the sustainability and financial viability of institutional frameworks. Funding for transport institutions, projects and programs often comes from national or provincial governments who have a greater ability to raise revenue through taxes and other means. Revenue from these sources is often complemented by licensing/registration fees and other charges collected at the local or operational level (including, in some instances, a proportion public transport fare revenue).

It is necessary to look at other ways of funding transport institutions in order to provide a more sustainable financial basis for the achievement of EST outcomes

³² GTZ (2004) Sustainable Transport: A Sourcebook for Policy-makers in Developing Countries (Module 1b Urban Transport Institutions), p 8

³³ GTZ (2004) Sustainable Transport: A Sourcebook for Policy-makers in Developing Countries (Module 1b Urban Transport Institutions), p 9

in the region. In this regard, consideration of the “user pays” and “beneficiary pays” mechanism is relevant, although the extent to which these mechanisms are applicable in developing regions needs to be assessed carefully.

Nonetheless, the Asian region has some innovative examples of these approaches to funding transport. In Singapore, the implementation of electronic road pricing is an example of a user pays approach to managing the demand for road use and providing a revenue stream for transport improvements. In Hong Kong Special Administrative Region of China, the use of land value capture mechanisms in the development of transit-oriented commercial and residential areas is an example of a “beneficiary pays” approach.

5. Summary and conclusion

As described above, there is a well-established overarching policy framework both globally and in the Asian region regarding EST outcomes. The composition of institutional arrangements to facilitate decision making for EST will be a crucial factor in determining the success of efforts in the region to achieve EST.

The focus of the paper is not on detailed issues of institutional design for transport authorities. Instead, it has focused on issues of integration between and within levels of government to achieve greater co-ordination in relation to EST, as well as covering issues of private sector involvement, skills and funding. It is necessary to get these overarching institutional settings in place in order to guide detailed institutional design.

To this end, the paper has outlined a set of non-exhaustive principles to guide the development of appropriate institutional settings for next generation sustainable transport systems, based on best practice both in the region and elsewhere. There is no one fit or structurally superior combination of institutional arrangements. Instead specific and appropriate arrangements can be devised by considering the application of these principles in their regional contexts.

References

UNCRD (2010) 5th Regional EST Forum, Final Meeting Summary

UNCRD (2013) 7th Regional EST Forum, Draft Concept Note

The Rio+20 outcome document: “The Future We Want” accessed at: <http://sustainabledevelopment.un.org/futurewewant.html> (A/RES/66/288)

The Bangkok Declaration 2010 – Sustainable Transport Goals for 2010 – 2020 accessed at: <http://www.uncrd.or.jp/env/7th-regional-est-forum/index.htm>

Wright, L. and Fulton, L. (2005) Climate Change Mitigation and Transport in Developing Nations, *Transport Reviews* 25(6) page 694

Stanley, J. and Smith, A. (2013) Governance, contracting, ownership and competition issues in public transport: Looking up not down, *Research in Transportation Economics*, 39, pp 167 – 174

Jones, P. and J. and Lucas, K (2008) Integrating transport into ‘joined-up policy appraisal, *Transport Policy*, 7, pp 185 – 193

GTZ (2004) Sustainable Transport: A Sourcebook for Policy-makers in Developing Countries (Module 1b Urban Transport Institutions)

Moving People 2030 Taskforce (2013) *Moving Australia 2030: A transport plan for a productive and active Australia*, p 44