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INTERGOVERNMENTAL ELEVENTH REGIONAL ENVIRONMENTALLY SUSTAINABLE TRANSPORT (EST) FORUM IN ASIA

2-5 OCTOBER 2018, ULAANBAATAR, MONGOLIA

Reference paper on

Major Challenges, Progress and Achievements by Asian Countries on the Implementation of EST Policies and Measures from Aichi EST Forum (2005) to Lao EST Forum (2017)

In support of discussion in EST Plenary Session-8: Moving Towards 2030-Successor of Bangkok 2020 Declaration (2010-2020)

Final Draft

This background paper has been prepared by Mr. Todd Litman and Mr. Robert Earley, for the Eleventh 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.

Major Challenges, Progress and Achievements by Asian Countries on the Implementation of EST Policies and Measures from Aichi EST Forum (2005) to Lao EST Forum (2017)

18 August 2016

2005 - Nagoya, Japan

2010 – Bangkok, Thailand

2015 – Kathmandu, Nepal

Summary

The *2015 Intergovernmental Ninth Regional Environmentally Sustainable Transport (EST) Forum in Asia*, held in Kathmandu, Nepal represents a decade of progress since the first EST Forum held in 2005. This is a good time to look back at what these events have already accomplished, and forward to future needs. This report summarizes the EST Forums' major achievements, challenges and opportunities, and provides recommendations for improvement.

PART -1

This part of the background paper has been prepared by Todd Litman, and the views expressed herein are those of the author only and do not necessarily reflect the views of the United Nations.

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Executive Summary

Leadership is the ability to create a common vision, and to assemble the resources needed to make that vision a reality. The world badly needs leadership for more sustainable transportation, particularly in rapidly developing countries that are now establishing transport patterns that will exist for many decades into the future. It's a huge challenge and opportunity.

Who provides this leadership? We do! The public officials, advisors, practitioners and experts who participate in the *Intergovernmental Regional EST Forums (hereafter EST Forum) in Asia* provide essential leadership for creating more sustainable transport systems for more than half the world's populations.

Sustainable transportation planning balances economic, social and environmental objectives. It applies comprehensive analysis and integrated planning which coordinates decision-making between different jurisdictions, sectors and groups. This approach identifies *win-win* solutions, that is, strategies that provide multiple benefits, for example, the pollution reduction strategies that also help reduce traffic congestion and accidents.

This is a timely issue. Asian countries are experiencing growth and development at an unprecedented scale. As a result, Asian countries face severe problems including congestion and pollution, rising inequity and declining quality of life, plus climate change and associated threats such as sea level rise and extreme weather events. We need practical solutions.

Fortunately, sustainable transportation experts have swung into action, in part, through the EST Forums and related events. During the last decade these international conferences have helped change the way decision-makers think about transport problems, introduced new solutions, and helped forge critical alliances. They attract hundreds of participants who influence thousands of decisions that affect billions of people (Figure ES-1). Many concepts and methods presented at the EST Forums are being adopted throughout Asia.

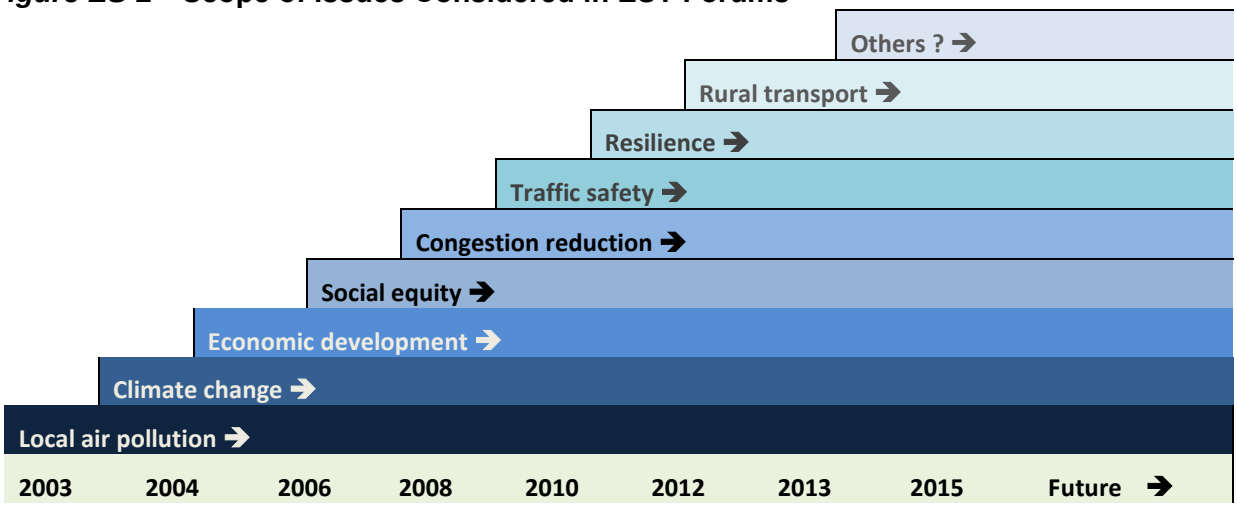
Figure ES-1 **EST Forum Leverage Effects**

The EST Forums, and related regional events, have huge leverage effects.

These events attract hundreds of participants who influence thousands of policies, which result in more sustainable transport planning, more diverse and efficient transport systems, and improved economic, social and environmental outcomes for billions of people throughout Asia.

During this decade we have gained a deeper understanding of sustainable transport issues, leading to more comprehensive and integrated planning. The EST Forums originally focused on air pollution problems, but incorporated other important issues over time, as illustrated below.

Figure ES-2 **Scope of Issues Considered in EST Forums**



The EST Forums originally focused on local air pollution problems, but over time have incorporated other important issues. This expanded scope reflects true sustainability, which balances economic, social and environmental goals, and attracts diverse stakeholders, which increases the Forums' influence.

More resource-efficient transportation provides diverse benefits (Table ES-1), including some that were traditionally overlooked and undervalued. For example, conventional planning overlooks the parking cost savings, trade deficit reductions, improved mobility for non-drivers, public fitness and health, and openspace preservation benefits that result when travelers shift from automobile to more efficient modes. As a result, more comprehensive planning tends to justify transportation demand management policies and programs.

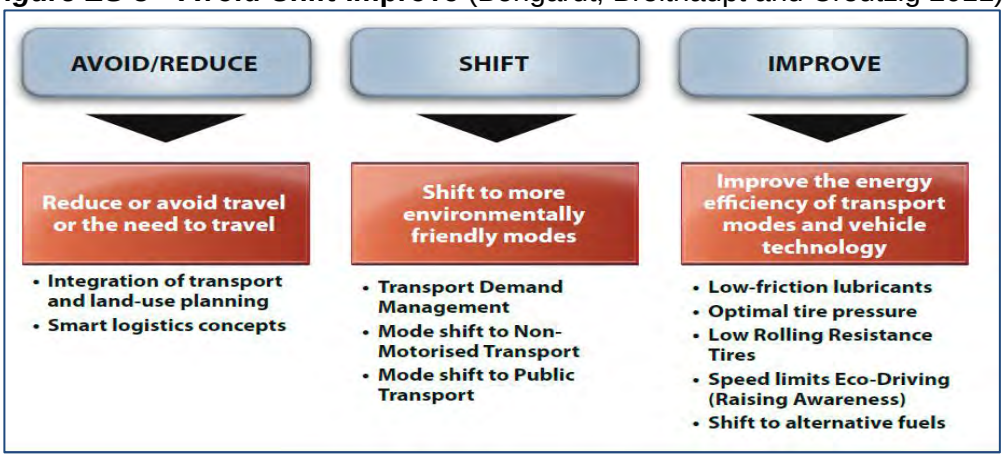
Table ES-1 **Benefits of More Efficient Transportation Systems**

Economic	Social	Environmental
• Traffic and parking congestion reductions • Infrastructure savings • Increased economic productivity • Reduced crash costs • Reduced trade deficits	• Basic mobility for non-drivers • Increased affordability and economic opportunity • Improved public fitness and health	• Reduced air, noise and water pollution • Openspace (farm and wildlife habitat) preservation • Improved livability (local environmental quality)

More sustainable transport provides diverse benefits.

Our understanding of sustainable transport improved during this decade. The EST Forums originally focused on reducing air pollution, but soon expanded to consider additional goals. It became evident that *everything is connected*, so successful solutions require comprehensive analysis of economic, social and environmental impacts in order to identify *win-win* strategies which help achieve multiple policy goals. These include policies that improve resource-efficient modes, such as walking, cycling and public transit; incentives for travelers to choose the most efficient mode for each trip; and more compact and multi-modal urban development which reduces the distances that people must travel to destinations. The *Avoid-Shift-Improve* approach provides a framework for prioritizing solutions to maximize benefits (Figure ES-3). This helps attract diverse stakeholders and build support for political and institutional reforms.

Figure ES-3 **Avoid-Shift-Improve** (Bongardt, Breithaupt and Creutzig 2011)



Avoid-Shift-Improve is a recipe for maximizing sustainable transport benefits.

Many win-win solutions have been thoroughly tested and proven their value. We now have a good understanding of where and how they should be implemented for maximum benefit. This means that we are now entering the promotion and adoption stage during which these concepts will be widely implemented (Figure ES-4). It is time to scale up!

Figure ES-4 **Where We Are and Where We Want To Be**

Sustainable transportation innovations are likely to follow a predictable growth pattern. Many strategies are currently in the "understanding" and "promotion" phases, and are starting into a "rapid adoption" phase. We should prepare to scale up to meet growing demands for smart solutions.

As part of this study we reviewed EST Forum progress reports and surveyed participants. Many of these documents reference and build on information and guidance from previous EST Forums. For example, many city and country reports indicate that government policies are changing in response to information presented at EST forums, and are working toward goals defined in EST Forum documents such as the Bangkok Declaration. This review indicates that the EST Forums have had the following impacts:

- They have introduced many decision-makers to sustainable transport concepts and strategies.
- They have helped make federal transport and environmental policies more sustainable. These federal reforms, in turn, leverage changes by other levels of government, in land use development policies, in the types of vehicles people use, and in travel patterns.
- They have supported policy changes by development banks and other international organizations that support more sustainable transport investments and planning.
- They have helped jurisdictions (countries and cities) establish sustainable transport planning goals, performance targets, standards and evaluation programs.
- They have responded to changing demands and emerging needs.
- They have helped create an information network including international organizations, government agencies and experts that produces and shares publications and analysis tools.

During the last decade the EST Forums, and related events, have helped create a shared vision and assemble the resources needed to create more efficient and equitable transport systems in Asia. As sustainable transportation planning expands it will be important to educate and inspire a much larger number of practitioners, the planners, engineers, designers, technicians and law enforcement officials who make many of the decisions that affect transport conditions and activities. There is a need for regional and local professional development programs, such as lectures, one-day workshops, webinars and training courses organized by professional organizations and universities.

The EST Forums in Asia demonstrate the value of leadership. Since the first EST Forum in 2005, these events have done much to create a shared vision and assemble the resources needed to create more efficient and equitable transport systems. But the work is certainly not done. Asian countries face severe challenges. Solving Asia's immense transportation problems will require many changes, including changes in the way we think about transport problems and evaluate solutions, changes in relationships between many organizations and groups, changes in the way governments plan and finance facilities and services, changes in transport prices and incentives, and ultimately, changes in the way we travel. Who will work to realize these changes? We will, the organizations and people of the EST Forums in Asia!

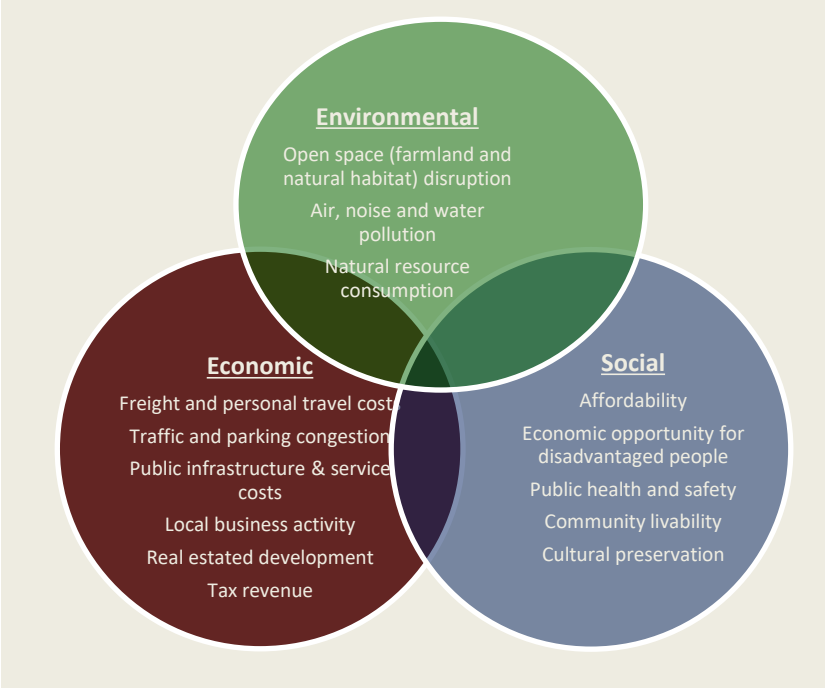
1. Introduction

Leadership is the ability to create a common vision, and to assemble the resources needed to make that vision reality. The world badly needs leadership for more sustainable transportation, particularly in rapidly developing countries that are now establishing transport patterns that will exist for many decades into the future. It's a huge challenge and opportunity.

Who provides that leadership? We do! The public officials, advisors, practitioners and experts who participate in the *EST Forums in Asia* provide essential leadership for creating more sustainable transport systems for more than half the world's populations. It's a huge challenge and a terrific opportunity to make the world better.

Transportation has diverse economic, social and environmental impacts (Figure 1). Conventional planning tends to focus on some impacts and overlook others, for example, it considers motor vehicle traffic delays but overlooking delays to pedestrians and cyclists, and considers traffic crash risks but overlooks the health risks of sedentary living. Sustainable transport planning applies more comprehensive analysis, which can result in more integrated planning. It can identify *win-win* solutions, that is, solutions to one problem that help achieve other planning objectives, for example, the congestion reduction strategies that also reduce pollution emissions, improve mobility for non-drivers, and increase public fitness and health.

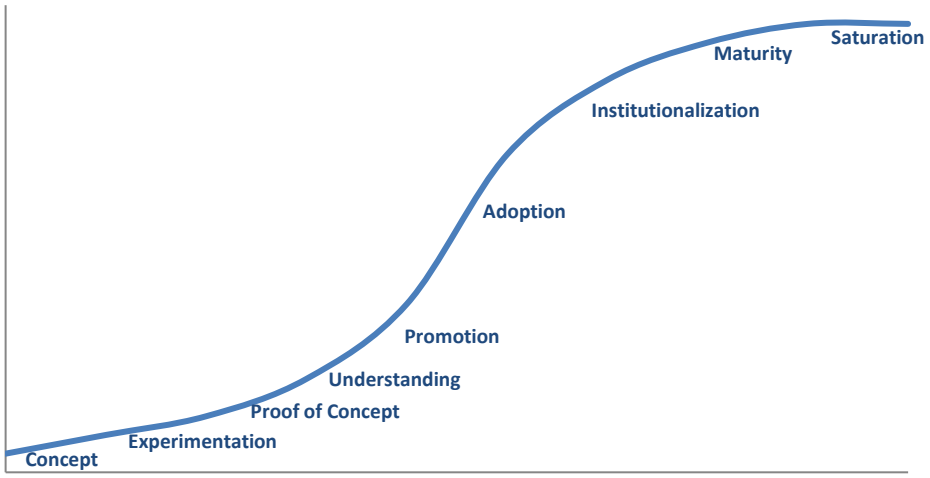
Figure 1 **Transportation Impacts**



Transportation policies have many environmental, economic and social impacts. Sustainability planning considers them all, including many that tend to be overlooked or undervalued in conventional planning.

Sustainable transportation planning requires a *paradigm shift*, a change in the way we define transport problems and evaluate potential solutions (ADB 2009). It supports innovative solutions, such as more integrated planning, pricing reforms, and new roadway management strategies. Such innovations usually follow an S-curve, starting with a concept that is tested, proven, promoted, adopted, institutionalized, and eventually matures and saturates (Figure 2).

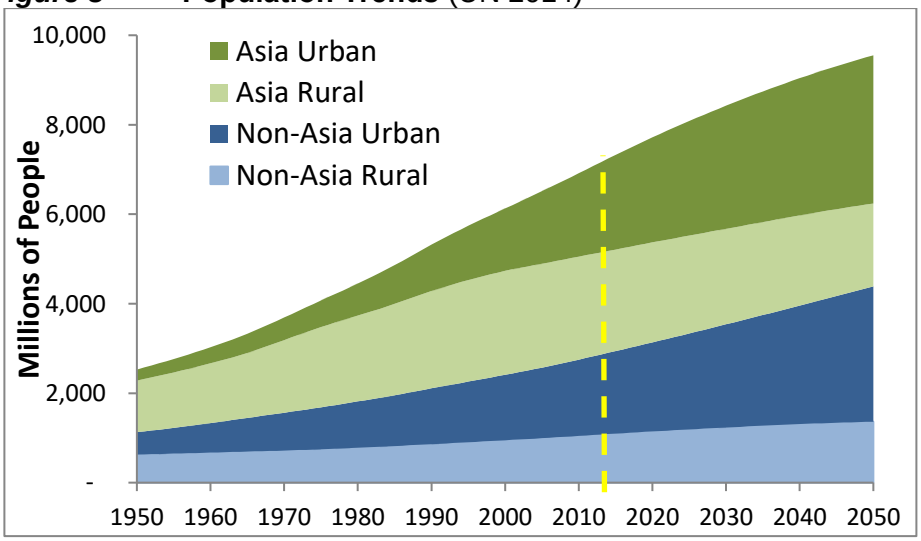
Figure 2 **Typical Innovation Deployment S-Curve**



Most innovations follow a predictable deployment curve, starting with a concept an eventually reaching saturation. Sustainable transport is currently in the early stages of this curve.

Most sustainable transportation innovations are in the early stages of this curve; they have been tested and proven, and are increasingly understood and promoted by experts, but have not been adopted or institutionalized as much as justified. For example, experts now have good information on how to implement more multi-modal planning, public transit priority, efficient transport pricing, and Smart Growth development policies, but for these strategies to achieve their full potential, they must be promoted to a larger audience of stakeholders, and institutions reformed to facilitate their implementation.

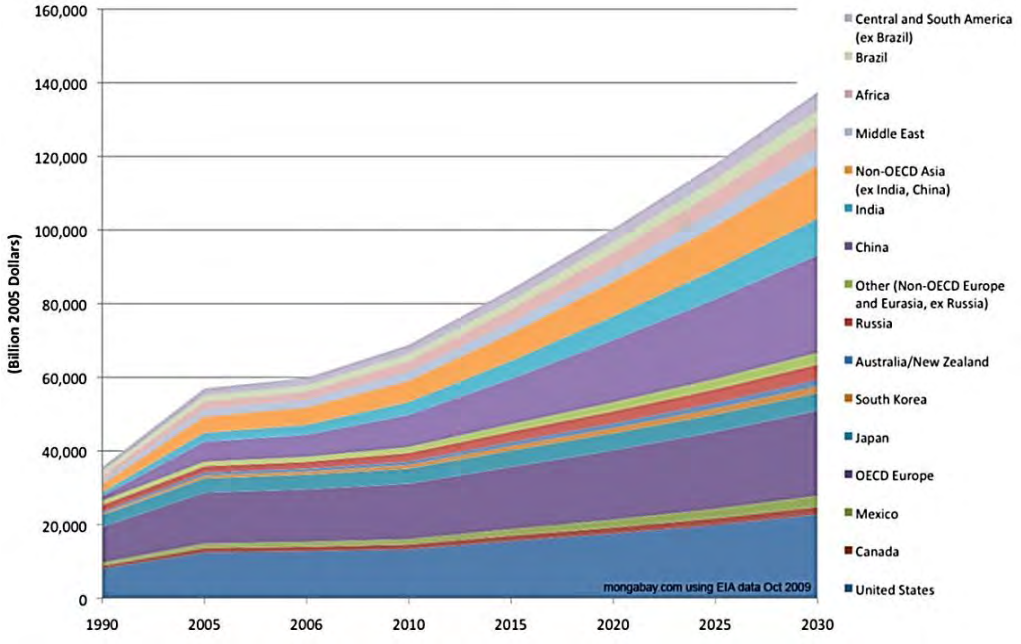
Figure 3 **Population Trends** (UN 2014)



Asian countries are growing and urbanizing. Between 2015 and 2050, Asian populations are projected to grow from 4.4 to 5.6 billion people, and Asian urban residents are projected to grow from 2.1 to 3.3 billion.

This is a timely issue. Our world is growing rapidly. Between 1950 and 2050 the world's human population is projected to quadruple, and economic activity will grow more than ten-fold, with most of this growth in Asia, as illustrated in figures 3 and 4. How we accommodate growing travel demands has huge economic, social and environmental impacts. Inefficient transport causes problems including traffic and parking congestion, high costs to households and governments, social inequity, traffic accidents, air and noise pollution, reduced public fitness and health, and open space (farmland and natural habitat) displacement. Sustainable transport policies can help reduce these problems.

Figure 4 **Gross Domestic Product (GDP) By Region** (EIA Data)



Asian countries are also experiencing rapid economic growth.

Decision-makers need practical guidance concerning how to implement these innovative solutions. During the last decade, the *Environmentally Sustainable Transportation (EST) Forums in Asia* have provided such guidance. Starting in 2005, high-level Asian officials and their advisors have met to discuss, learn and coordinate transport policies that balance economic, social and environmental goals. These forums provide a unique opportunity for decision-makers and experts to share information and coordinate programs.

How well are Asian countries implementing sustainable transportation planning? What roles have the EST Asia Forums played in this transition? What should it do in the future? This report examines these issues. It reviews the history of EST Forums, their accomplishments, the obstacles they face, and the roles they can play in the future. It provides recommendations for making EST Forums respond to evolving needs and increase its future benefits.

2. Context – Why Promote Sustainable Transport in Asia?

This section discusses some special reasons for Asia to implement more sustainable transport policies.

Sustainability emphasizes the integrated nature of human activities and therefore the need for coordinated planning among different sectors, groups and jurisdictions. *Sustainable transport planning* recognizes that transport decisions affect people in many ways, and so requires comprehensive analysis of impacts and options. Although they are called ***Environmentally*** *Sustainable Transportation Forums*, they actually consider a wider scope of issues, including economic development, social equity, health and safety, and institutional reforms. This reflects true sustainability which strives to balance economic, social and environmental goals.

The following are important context issues which make sustainable transport policies particularly important and timely in Asia.

2.1. United Nations Sustainable Development Goals

At the 2015 United Nations Sustainable Development Summit, world leaders adopted the *2030 Agenda for Sustainable Development*, which defines 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030 (UNDP 2015).

Figure 5 **United Nations Development Goals** (UNDP 2015)

Several of these goals directly and indirectly relate to sustainable transportation, and so both support and are supported by the EST Forums:

Goal 1: No Poverty (indirect)
Goal 2: Zero Hunger (indirect)
Goal 3: Good Health and wellbeing (direct)
Goal 4: Quality education (indirect)
Goal 5: Gender equality (indirect)

Goal 7: Affordable and clean energy (direct)
Goal 10: Reduced inequalities (indirect)
Goal 11: Sustainable cities and communities (direct)
Goal 12: Responsible consumption and production (indirect)
Goal 13: Climate action (direct)
Goal 17: Partnerships for the goals (indirect)
Goal 13: Climate action (direct)

2.2. A Changing Transport Planning Paradigm

These Forums have occurred during a *paradigm shift*, a fundamental change in the way people think about transportation problems and evaluate potential solutions (ADB 2009; Litman 2013). The old paradigm evaluated transport system performance based primarily on *mobility* (physical travel), and so assumed that the goal is to maximize vehicle traffic speed and distance. This perspective tends to favor automobile travel. The new paradigm recognizes that mobility is seldom an end in itself, that the ultimate goal of most transportation is *accessibility* (people's ability to reach desired services and activities), and so considers a wider range of impacts and options. This perspective recognizes the important roles that walking, cycling and public transit can play in an efficient and equitable transport system, and supports more comprehensive planning that results in *win-win* solutions, that is, the solution to one problem that also help achieve other planning objectives. Table 1 compares various facets of this shift.

Table 1 **The Changing Transportation Planning Paradigm**

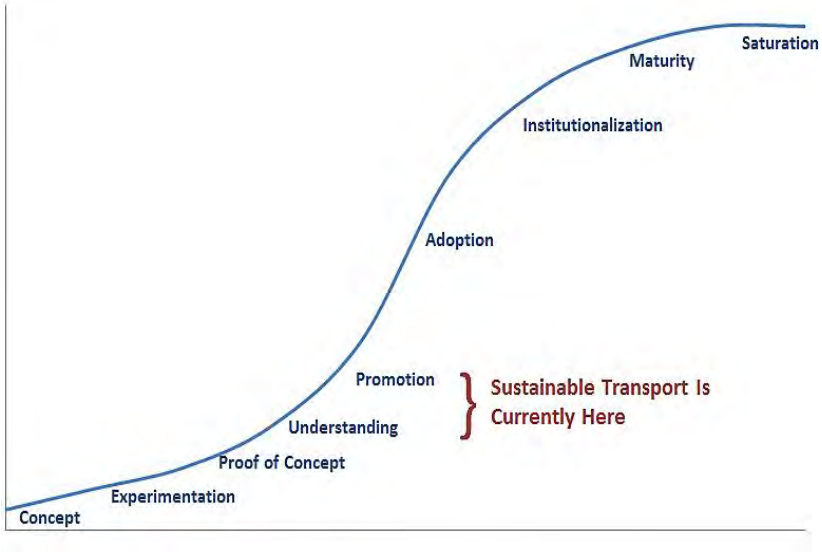
	Old	New
Definition of *Transportation*	*Mobility* (travel speed and distance)	*Accessibility* (ability to obtain goods, services and activities)
Modes considered	Motor vehicles. Walking, cycling and public transit are considered inferior, to be replaced by private motor vehicles when possible	Walking, cycling, automobile, public transit, delivery services and telecommunications are all recognized as important components of an efficient and equitable transport system
Impacts to consider (performance indicators	Traffic speed and delay, roadway level-of-service, vehicle operating costs, vehicle crash rates	Multi-modal level-of-service, land use accessibility, transport affordability, basic mobility for non-drivers, per capita crash rates, pollution emissions
Objectives	Maximize mobility (the amount people can travel)	Various economic, social and environmental objectives
Transportation improvement options	Roadway improvements to increase capacity, speed and safety	Improvements to various modes, transportation demand management, more compact, "Smart Growth" development

A paradigm shift is changing the way we think about transportation problems and evaluate solutions.

2.3. The Process of Change

Business as Usual (BAU) policies are not expected to achieve sustainable development goals. Sustainable transportation will require policy changes and innovative solutions. The key words are *change* and *innovation*, so it is useful to think about how such changes occur. Innovation deployment typically starts with a concept that is tested, proven, promoted, adopted, institutionalized and eventually matures and saturates, as illustrated by the figure below.

Figure 6 **Typical Innovation Deployment S-Curve**



Most innovations follow a predictable deployment curve, starting with a concept an eventually reaching saturation.

Most sustainable transport strategies are currently in the early stages of this curve, where we gain understanding and promote new concepts, but many are starting to experience rapid adoption.

Table 2 evaluates the current deployment status of various sustainable transport concepts. Most are currently in the early stages, they have been successfully tested and proven, and we are gaining understanding about where and how they should be implemented, so they are ready for promotion and much wider adoption. This suggests that many of these innovations are ready to scale up.

Table 2 **The Current Status of Sustainable Transport Concepts**

Concepts and Programs	Deployment Status
Multi-modal planning	Well understood by experts, but requires more promotion and wider adoption.
Bus Rapid Transit	Well tested and understood, and is increasingly promoted and adopted.
Complete Streets policies	Proven in developed countries and is being tested in developing countries.
Parking management	Has been tested and proven in some cities, but faces numerous obstacles and so requires more promotion and support for implementation.
Efficient road pricing	Successfully tested in a few cities, but many people misunderstand and so requires more promotion and support for implementation.

Sustainable transport policies and innovations are at various stages in the deployment cycle. Many are entering their promotion and rapid adoption stages in which they can expand significantly.

2.4. Integrated Policies and Planning Practices

Sustainable transportation planning requires integrated policies and planning practices. There are many aspects of integration, including coordination between different countries, jurisdictions, agencies and groups. The inefficiencies of contradictory policies and disjointed planning, and the need for better integration, are frequent topics at EST Forums. Independent international organizations, such as the EST Forums and their partners, can play important roles in helping to integrate policies and planning practices.

2.5. Understanding Impacts and Outcomes

Decision makers have certain policies, sometimes called *levers*, like the controls of a machine, which can influence change. Table 3 lists examples of sustainable transportation policy levers.

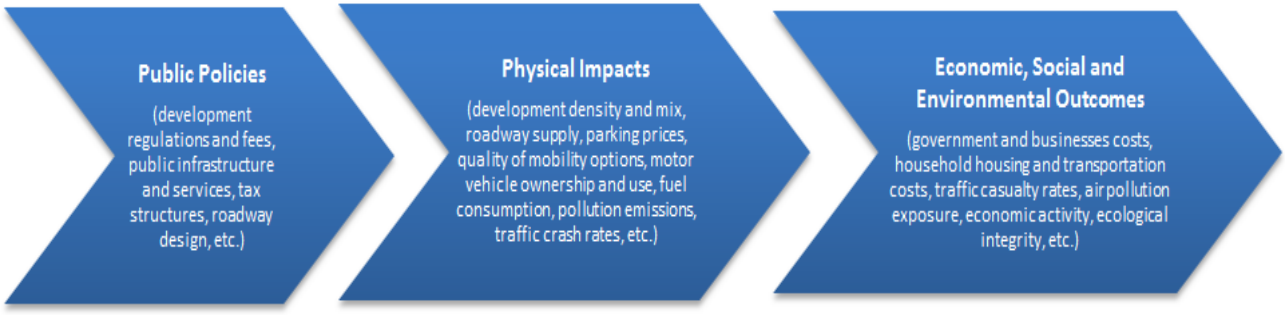
Table 3 **Examples of Sustainable Transport Policy Levers**

Transport	Land Use
• Roadway construction, design and operation • Provision of public vehicle parking • Road and parking pricing (tolls and fees) • Provision of footpaths, bikepaths and bicycle parking • Provision of public transit services • Regulations regarding private transport services • Transportation demand management programs	• Regulations that control where development is allowed • Provision of public infrastructure (roads, water, power, telecommunications, etc.) • Building regulations (allowable density, heights, allowable uses, etc.) • Parking requirements and regulations

Various policies can affect transport systems and land use development, and therefore help achieve sustainable transport goals.

To evaluate these policies it is important to understand their physical impacts and their ultimate economic, social and environmental outcomes, as illustrated in Figure 7. Although some of these relationships are obvious – for example, raising fuel taxes or parking fees tends to reduce affected vehicle travel, and public transit service improvements tend to increase ridership – specific impacts and outcomes can be difficult to predict. Targeted research can create models for predicting how particular policy changes affect sustainability goals.

Figure 7 **Policies, Impacts and Outcomes** (Litman 2014)



Effective analysis requires understanding how policies affect economic, social and environmental outcomes.

3. A Review of EST Forums History and Accomplishments

This section summarizes the history of the EST Forums and describes some key documents.

3.1. History

EST events began with the 2003 *International Conference on Environmentally Sustainable Transport in the Asian Region* and the 2004 *Manila Policy Dialogue on Environment and Transportation in the Asian Region*. This produced the *Manila Statement*, which asked the United Nations Centre for Regional Development (UNCRD) to help establish an ongoing regional forum for promoting environmentally sustainable transport. That led to the *EST in Asia Forums*. The table below summarizes these events.

Table 4 **Summary of EST Events**

Time and Place	Event	Documents	Countries	People
March 2003 Nagoya, Japan	International Conference on Environmentally Sustainable Transport in the Asian Region	*Nagoya Statement*		
January 2004 Manila, the Philippines	Manila Policy Dialogue on Environment and Transport in the Asian Region.	*Manila Statement*	13	
August 2005 Nagoya, Japan	First Meeting of the Regional EST Forum in Asia	*Aichi Statement*	13	80
December 2006 Yogyakarta, Indonesia	Second Meeting of the Regional EST Forum in Asia	*Meeting Summary*	14	100
April 2007 Kyoto, Japan	Asian Mayors' Policy Dialogue for Promotion of Environmentally Sustainable Transport	*Kyoto Declaration*		
March 2008 Singapore	Third Meeting of the Regional EST Forum in Asia	*Meeting Report*	22	120
November 2008 Bangkok, Thailand	Special Event of Asian Mayors for the Signing of the Kyoto Declaration for Promotion of EST	*Kyoto Declaration, Extension*		
February 2009 Seoul, Rep. of Korea	Fourth Meeting of the Regional EST Forum in Asia	*Seoul Statement*	22	150
March 2010 Seoul, Rep. of Korea	Special Event of Asian Mayors for the Signing of the Kyoto Declaration for the Promotion of Environmentally Sustainable Transport	*Kyoto Declaration, Addendum*		
August 2010 Bangkok, Thailand	Fifth Meeting of the Regional EST Forum in Asia. Adopted	*Bangkok Declaration for 2020*	22	200
December 2011 New Delhi, India	Sixth Meeting of the Regional EST Forum in Asia	*Chair's Summary*	21	160
April 2013 Bali, Indonesia	Seventh Meeting of the Regional EST Forum in Asia	*Bali Declaration*	*23*	*200*
November 2014 Colombo, Sri Lanka	Eighth Meeting of the Regional EST Forum in Asia	*Colombo Declaration*	*40*	*1,000*
November 2015 Kathmandu, Nepal	Ninth Meeting of the Regional EST Forum in Asia	*Chair's Summary*	26	350

Fourteen major international events have promoted sustainable transportation in Asia. They are helping to transform policies and planning practices to create more efficient and equitable transport systems

These events have the following goals (MoE 2013):

- Facilitate policy dialogue and sharing of best practices, policy instruments, tools, and technologies for environmentally sustainable transport among Asian countries.
- Facilitate and provide necessary advisory support for the formulation of national EST strategies and action plans.
- Support the implementation of action plans through the participation of international organizations and international development and donor agencies.
- Help establish linkages with other ongoing regional and international activities and initiatives.

Forum participants include a diverse range of government executives (ministers and mayors), policy advisors, government officials, development bank officials, representatives from international organizations, practitioners (planners, engineers and economists), researchers and academics.

These events attract numerous partners:

The Asian Development Bank (ADB), Adenauer Foundation, EMBARQ (The World Resources Institute's Center for Sustainable Transport), German International Cooperation (GIZ), International Council for Local Environmental Initiatives (ICLEI), Innovation Center for Mobility and Societal Change (InnoZ), Institute for Global Environmental Strategies (IGES), Institute for Transportation and Development Policy (ITDP), International Union of Railways (UIC), Partnership on Sustainable, Low Carbon Transport (SLoCaT), SAFER - Vehicle and Traffic Safety Centre, South Asia Co-operative Environment Programme (SACEP), TERI University, The Korean Transport Institute (KOTI), The World Bank (WB), University of Gothenburg, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), World Health Organization (WHO).

These events have inspired parallel events:

- The *Asian Mayors' Policy Dialogue for the Promotion of Environmentally Sustainable Transport in Cities*, during which mayors from 23 cities in 14 Asian countries shared best practices and adopted the Kyoto Declaration, which commits to further EST development in Asia. To date, 44 cities have signed the statement during the *Special Event of Asian Mayors for the Signing of the Kyoto Declaration*, held in 2008 and 2010.
- The *Sustainable Transport Forum for Latin América* (Foro de Transporte Sostenible para America Latina), which first met in June 2011 in Bogota, Columbia, and produced the *Bogota Declaration*.

EST Forums include plenary sessions during which delegations conduct formal business, plus extensive information sharing, including background papers, presentations, panel discussions, workshops and special events. For example, the 2014 Forum had 12 background papers, 11 city reports, and 16 country reports and more than a dozen presentations and workshops.

Aichi Statement Elements

1. Public health
2. Road safety and maintenance
3. Traffic noise management
4. Social equity and gender perspectives
5. Public transport planning and transport demand management (TDM)
6. Non-motorized transport
7. Environment and people friendly urban infrastructures
8. Cleaner fuels
9. Strengthening road side air quality monitoring and assessment
10. Vehicle emission control, standards, inspection and maintenance
11. Land use planning
12. Strengthening knowledge base, public participation and awareness

The first Forum held in Nagoya, Japan produced the *Aichi Statement*, which identified twelve elements for environmentally sustainable transport (above). Subsequent events have inspired several declarations and statements which establish sustainable transportation principles and goals, and allow countries and cities to reaffirm their commitment to work together for more sustainable transportation. The 2010 *Bangkok Declaration* established specific goals to be achieved by 2020, and identified indicators for measuring progress toward those goals.

EST Forum Declarations and Statements

Aichi Statement (2005)

Manila Statement (2004)

Kyoto Declaration (2007-2015)

Seoul Statement (2009)

Bangkok 2020 Declaration (2010)

Bali Declaration (2013)

Colombo Declaration (2014)

The EST Forums in Asia have inspired several declarations and statements. These documents establish sustainable transportation principles and goals, and allow cities and countries to reaffirm their commitment to toward these goals. Below are examples:

Colombo Declaration

For the Promotion of Next Generation Low-Carbon Transport Solutions in Asia

(21 November 2014)

We, the participants, who are representatives of member countries of Regional Environmentally Sustainable Transport (EST) Forum in Asia (Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Russian Federation, Republic of Korea, Singapore, Sri Lanka, Thailand, and Viet Nam), international organizations, bilateral and multilateral agencies, nongovernmental organizations, research organizations, and sustainable transport experts, having met at the Eighth Regional EST Forum in Asia, held in Colombo, Sri Lanka, from 19 to 21 November 2014, unanimously adopt the Colombo Declaration, in order to demonstrate our continued intention in, and reinforce our resolve and commitment to the promotion of low carbon transport in Asia.

Bali Declaration

on

Vision Three Zeros - Zero Congestion, Zero Pollution, and Zero Accidents

towards Next Generation Transport Systems in Asia

We, the participants, who are representatives of member countries of the Seventh Regional Environmentally Sustainable Transport (EST) Forum in Asia (Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, People's Republic of China, Indonesia, India, Japan, Republic of Korea, Lao PDR, Maldives, Mongolia, Myanmar, Nepal, the Philippines, Pakistan, Russian Federation, Sri Lanka, Thailand, Timor-Leste, and Viet Nam), international organizations, bilateral and multilateral agencies, nongovernmental organizations, research organizations, and expert sustainable transport professionals, having met at the Seventh Regional EST Forum in Asia and Global Consultation on Sustainable Transport in the Post-2015 Development Agenda, held in Bali, Indonesia, from 23 to 25 April 2013, adopt the "***Bali Declaration on Vision Three Zeros - Zero Congestion, Zero Pollution, and Zero Accidents towards Next Generation Transport Systems in Asia***", to give further inspiration and encouragement to all who are working on promoting environmentally sustainable transport in Asia. Realizing this will be helped by zero tolerance to fatalities, congestion, and pollution.

Recalling the commitments to achieve the sustainable transport goals under the *Bangkok 2020 Declaration (2010-2020)* agreed upon by the participants at the Fifth Regional EST Forum, held in Bangkok, Thailand, on 23-25 August 2010,

SEOUL STATEMENT

– Towards the Promotion of Environmentally Sustainable Transport (EST) for a Low-Carbon Society and Green Growth in Asia –

The participants, having met in Seoul, the Republic of Korea from 24 to 26 February 2009, for the Fourth Regional EST Forum, to draw up and adopt a statement for the promotion of environmentally sustainable transport in Asia,

Noting that Asia is experiencing the fastest economic growth and by mid of this century, and at the current growth rate there might be more motorized vehicles in Asia than there would be in Europe and North America combined, and that the profound impact of this trend on quality of human life and environment can not be underestimated,

Reaffirming and building upon the integrated EST measures defined under the *Aichi Statement* adopted at the First Regional EST Forum in Asia, held in Nagoya, Japan, on 1-2 August 2005, and considering that efforts to promote environmentally sustainable transport will not only result in the improvement of human health through the reduction of urban air pollution, but will also have important complementary (co-)benefits, including the reduction of greenhouse gas (GHG) emissions,

Recognizing the outcome of the Fifth Ministerial Conference on Environment and Development in Asia and the Pacific held in Seoul in 2005, which endorsed environmentally sustainable economic growth, *Green Growth*, as a policy focus and important strategy for achieving the Millennium Development Goals (MDGs) as well as decoupling environmental degradation from development,

The Forums are well documented: each has a website that contains agendas, backgrounders, technical reports, presentations, city and country annual reports, and declarations.

EST Websites

Forum Documentation

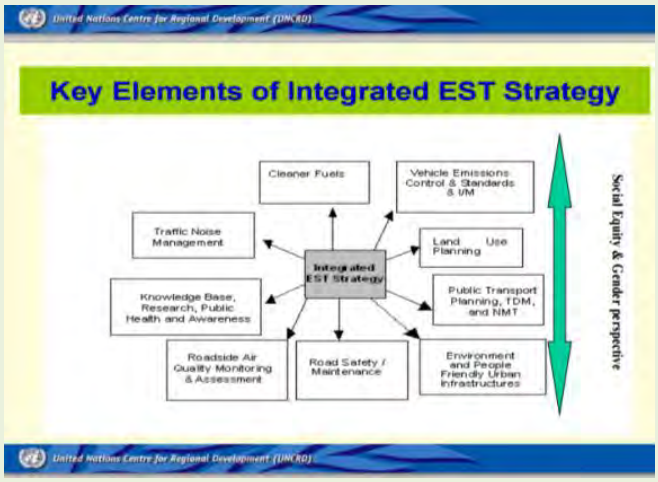
The EST Forums are well documented; each has a website where key documents are posted. Each country or city delegation submits an annual report based on standard questions. There are now several hundred reports.

About Regional EST Forums

Eighth Regional EST Forum (2014)
Seventh Regional EST Forum (2013)
Sixth Regional EST Forum (2011)
Fifth Regional EST Forum (2010)
Fourth Regional EST Forum (2009)
Third Regional EST Forum (2008)
Second Regional EST Forum (2006)
First Regional EST Forum (2005)

These documents provide a useful way to evaluate trends and progress over the last decade. Below are typical statements and observations from various Forum reports.

Examples from the Second EST Forum (2006)



Other Issues

- Long term vision required
- Governance Issues
- Institutional Strengthening and Capacity Development
- Climate change issues need to receive greater weight
- Second hand vehicles
- Unregistered vehicles and insurance issues
- Sustainable transport indicators: measurable
- Out-of-the-box thinking required but solutions need to be local
- Energy efficiency measures needed. Fuel economy standards

3.2. Current Conditions

Many reports, particularly those from lower-income countries, indicate that current transportation conditions are inefficient and unsustainable, including severe traffic and parking congestion, poor walking and cycling conditions, inadequate public transport services, high accident rates and severe pollution problems.

Examples from the Third EST Forum (2008)

Regional Dimensions

- Trade liberalization and its regional impacts
- The export of vehicles
- Time to take a regional perspective on vehicle standards, fuel issues, etc.
- Standards and regulations are important, but we need ACTION now

3.3. Policy Reforms and Planning Innovations

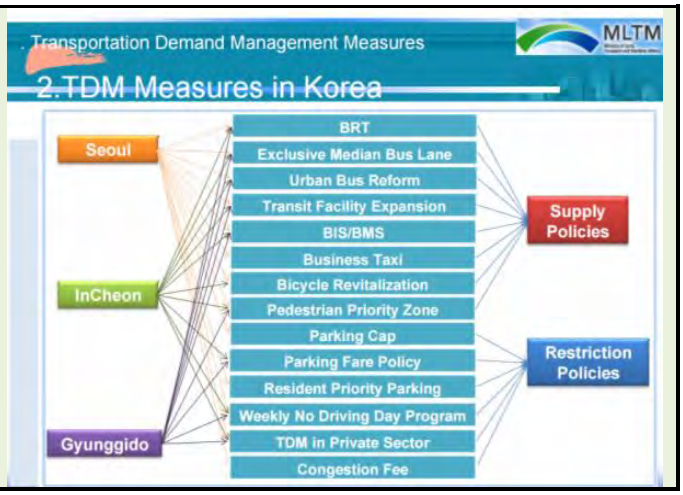
Many countries and cities report that, in response to EST Forum guidance, they are implementing major policy reforms, including changes in funding and planning priorities, and more strategic planning to support sustainable transport. Many also report changing transport planning practices, including innovative traffic management, pedestrian and cycling improvements, public transit improvements, more integrated planning, vehicle emission control and safety programs, and deployment of new technologies that facilitate green travel.

Examples from the Fourth EST Forum (2009)

Common Trends

Countries are now planning substantive EST Actions:

- Actively promoting mode shift from private motor vehicles to public transport (rail and bus)
- Change institutional structures to make EST possible
- Countries are also making financing available for EST
- NMT still has only modest priority
- EST is not (yet) driven by climate change but by local environment, safety, economics.



Examples from the Fifth EST Forum (2010)

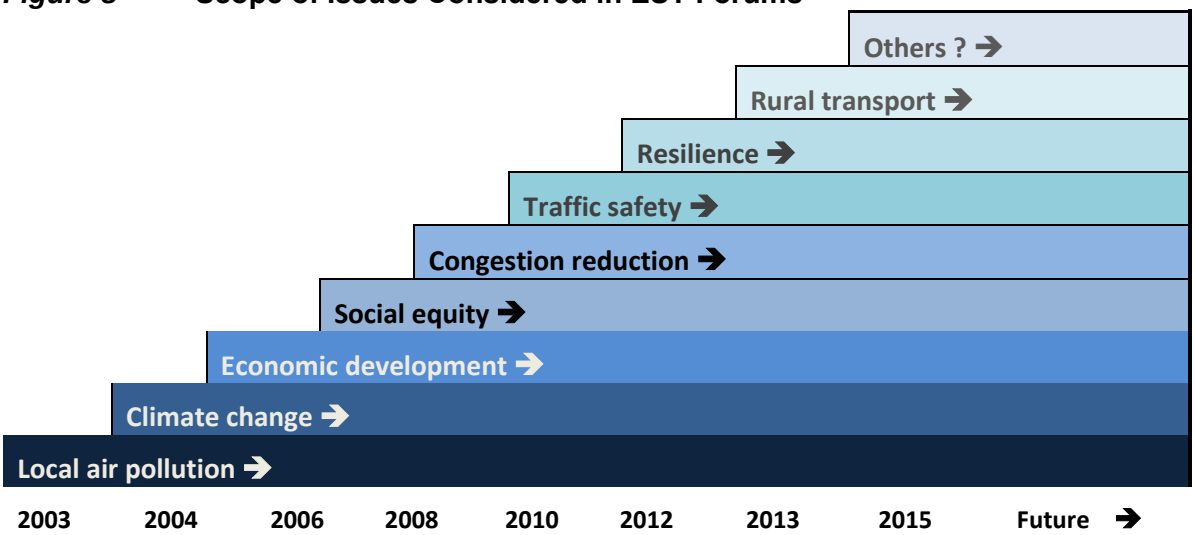
Urban Transportation Problems

- Uncontrollable car and motorbike growth
- Limited transportation network, preferable to cars
- Mismanagement of transportation facility utilisation
- Unstructured transportation network
- Uncontrollable urban development
- Population and economic growth with resulted to high demand growth

3.4. The Scope of Issues and Options Considered

The scope of issues considered in the EST Forums has expanded over time to include emerging perspectives and concerns. The Forums began as a way to address local air pollution problems but soon added additional issues and policy options. For example, the 2014 EST Forum highlighted "three zeros" (zero congestion, traffic deaths and pollution emissions), and the 2015 EST Forum also examined resilience (responding to climate change threats and other disaster risks) and rural transport planning objectives.

Figure 8 **Scope of Issues Considered in EST Forums**



The EST Forums originally focused on local air pollution problems, but over time have expanded their scope to include new issues. This expanded scope reflects true sustainability, which balances economic, social and environmental goals, and attracts diverse stakeholders, which increases the Forums' influence.

Similarly, the range of potential solutions has expanded over time to include a wide variety of policies, programs, incentives and technologies. For example, many Asian cities have developed bus rapid transit systems, street design manuals, new transit information and payment systems, and cleaner vehicle technologies, concepts that were little known previously.

Examples from the Sixth EST Forum (2011)

Expected Outcomes

- Improved traffic flow in the locations of project intervention due to reduced congestion.
- 10% increase in vehicular traffic throughout particularly for those who use non-motorized vehicles and public transport, especially women
- 10% decrease in the number of traffic accidents

Complements Bangkok 2020 Goals

This ability to respond to emerging concerns and integrate multiple planning objectives reflects true sustainability, and helps the Forums attract participants with diverse perspectives and goals, which can increase political and institutional support for implementing solutions. It means, for example, that organizations interested in economic development, affordability, social equity and public fitness and safety have reasons to join and support the Forums.

Examples from the Seventh EST Forum (2013)

Urban Transport Challenges

- Lack of institutional framework
- Gaps in capacity
- Low penetration of public transport
- No enabling environment for NMT
- Poor road quality
- Limited use of technology & innovation

Bangkok Declaration for 2020

- Sustainable Transport Goals for 2010 - 2020

Name of Policy or Strategy	SHIFT				IMPROVE				CROSS-CUTTING STRATEGIES					
	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8	Goal 9	Goal 10	Goal 11	Goal 13	Goal 14	Goal 15	Goal 16	Goal 18	Goal 19
National EST Strategy	x	x										x		x
. Promotion of BRT system for metro cities		x										x		
. Expansion of urban rail in Metro Manila		x												
. Replacement of 2-stroke tricycles		x											x	
. Bike on Bike off - LRT	x													
Alternative Fuels														
. Biofuels as transport fuels					x									
. Natural gas for public transport					x							x		
. Autogas (LPG) program					x									
. Jeepney engine replacement to LPG					x								x	
Fuel Efficiency														
. Road Transport Patrol									x					
Nautical Highway System (RRTS)				x										
Tricycle Management														
Bikeways and Walkways Program in Metro Manila	x													
Road User's Tax Law – Special fund for air pollution control													x	
Public transport strategic plan for Metro Cebu		x												

3.5. 2016 Participants' Survey

For this ten-year review we surveyed past EST Forum participants to obtain feedback concerning their experience and suggestions for improvement. Below are some highlights.

Impact of EST Forums

- Most respondents indicated that the EST Forums have helped their countries implement more sustainable transport policies, and provided specific examples, such as improving public officials' knowledge, development of new policies, programs and technologies, and implementation of new non-motorized and BRT projects.
- The EST Forums inspired the National Environmentally Sustainable Transport Strategy for the Philippines (NESTSP), and the Philippines National Climate Change Action Plan (NCCAP).

Sustainable Transportation Implementation Obstacles and Solutions

- Respondents cited various obstacles, including poor coordination between government policies and agencies, inadequate and conflicting institutions, conflicting laws, inadequate professional capacity (particularly at the local level), inadequate funding, inadequate data, and a lack of public understanding of these issues.
- Several respondents suggested that the EST Forums can help overcome these obstacles by providing more technical support and training, and information on potential funding options for financing sustainable transport programs.

EST Forum Strengths and Weaknesses

- Respondents indicate that the EST Forums provide very useful information, with something for everybody, peer-to-peer sharing, and support for policy reforms.
- Respondents mentioned several weaknesses. General weaknesses include inadequate assistance for meeting the specific needs of countries and local governments. Specific weaknesses about the Forums include presentations that are too fast, and inflexible agendas that fail to encourage audience interactions ('back seat driving').

EST Forum Goals (e.g., Bangkok Declaration)

- Respondents indicated that all goals are important, but their relevance to a particular country or agency depends on its characteristics and perspectives. For example, a Japanese respondent emphasized more citizen participation, and Sri Lanka respondents emphasized the importance of non-motorized and public transit improvements.

New Media Campaigns and Planning Tools

- Most respondents indicate that their organization would support new media campaigns, and some provided examples of their current programs, such as Japan's *Smart Move* and Bhutan's *Road Safety* programs.
- Many respondents supported or requested new evaluation and planning tools, such as guidebooks, evaluation software, databases and case studies,

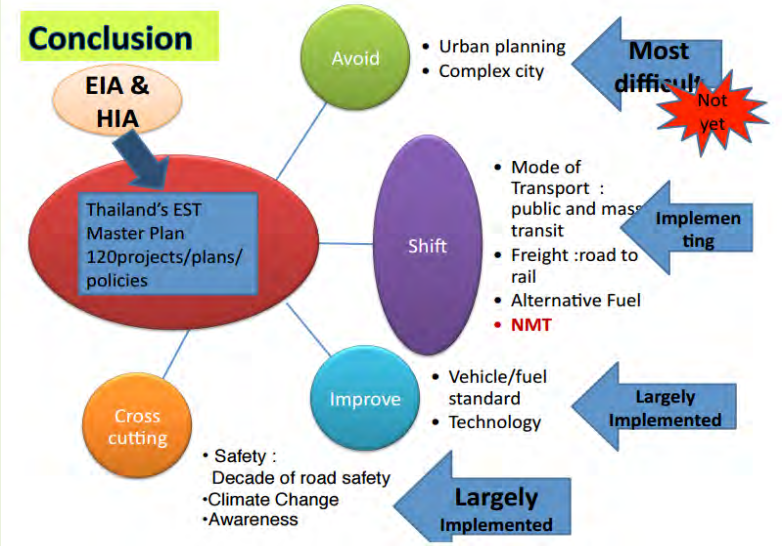
Other Organizations and Regional or National Forums

- Respondents listed various other organizations and groups that should be involved in future EST Forums, including development agencies, ministry of finance officials, local officials, traffic safety and police and academics.
- Almost all respondents support the organization of smaller, regional/national forums (the importance of involving local officials is mentioned many times in response to various questions), possibly as biannual events that alternate with the international EST Forum in Asia.

Other Suggestions for Improving Future EST Forums

- More information on potential funding sources.
- More focused themes.
- Earlier distribution of background papers.
- Better time management of sessions.
- Involve private enterprise, for example, by allowing exhibitions.
- Have countries identify one contact person who is responsible for monitoring and reporting on their country's progress toward targets.

Examples from the Eighth EST Forum (2014)



Major achievements/new initiatives based on Bangkok Declaration

- Most urban centers now have integrated land use and transport plans
- Nationwide backbone fiber-optic network
- Transport identified as top sector in Technology Needs Assessment
- National Appropriate Mitigation Actions (NAMAs) for Transport sector is being developed
- Plan for BRT drawn but remains unimplemented due to high cost of related infrastructure and buses
- More comfortable and less polluting inter-city buses
- Reserved seats for people with special needs

3.6. Bangkok 2020 Declaration

The *2010 Bangkok Declaration* established twenty specific sustainable transport goals, with measurable performance indicators, to be achieved by 2020.

Bangkok Declaration 2020 Goals (http://bit.ly/1WFyhU3)

*I. Strategies to **Avoid** unnecessary travel and reduce trip distances*
1: Formally integrate land-use and transport planning
2: Achieve mixed-use development and medium-to-high densities along key corridors
3: Institute policies, programmes, and projects supporting Information and Communications Technologies (ICT) as a means to reduce unneeded travel.

*II. Strategies to **Shift** towards more sustainable modes*
4: Require Non-Motorized Transport (NMT) components in transport master plans
5: Improve public transport services
6: Reduce the urban transport mode share of private motorized vehicles through Transportation Demand Management (TDM) measures
7: Achieve significant shifts to more sustainable modes of inter-city passenger and goods transport

*III. Strategies to **Improve** transport practices and technologies*
8: Diversify towards more sustainable transport fuels and technologies
9: Set progressive, appropriate, and affordable standards for fuel quality, fuel efficiency, and emissions
10: Establish effective vehicle testing and compliance regimes
11: Adopt Intelligent Transportation Systems (ITS)
12: Achieve improved freight transport efficiency

IV. Cross-cutting strategies
13: Adopt a zero-fatality policy
14: Promote monitoring of transport health impacts
15: Establish country-specific air quality and noise standards
16: Implement sustainable low-carbon transport initiatives to mitigate the causes of global climate change and to fortify national energy security
17: Adopt social equity as a transport planning and design criteria
18: Encourage innovative financing mechanisms for sustainable transport
19: Encourage widespread distribution of information and awareness on sustainable transport
20: Develop dedicated and funded institutions that address sustainable transport-land use policies

Reports presented at subsequent EST Forums indicate a country's progress toward the twenty Bangkok Declaration goals, the challenges they face, and further actions they plan to take to achieve their goals. This information helps identify ways that the EST Forums can help countries overcome these obstacles and implement policy reforms. Table 5 summarizes 74 reports presented at the Sixth (2011) through the Ninth (2015) EST Forums. The table indicates the number of times a goal was mentioned, and how many were rated, "Not Yet," "Some Progress," "Largely in Place" or "Fully Completed." Since most progress reports only describe a minor portion of a country's activities, many are doing much more to achieve the Bangkok Declaration goals than the table indicates.

Table 5 **State of Implementation of Bangkok 2020 Declaration (2010-2020) in EST Countries of Asia** (From Appendix 3)

Bangkok 2020 Declaration Goals	Mentions This Goal	"Not Yet"	"Some Progress"	"Largely in Place" or "Completed"	Remarks and Examples of Progress Since 2011
I. ***Strategies to Avoid unnecessary travel and reduce trip distances***					
1. Formally integrate land-use and transport planning	60	4	45	11	Many countries have established integrated urban transport and land use planning. For example, Bangladesh established a National Integrated Multimodal Transport Policy in 2013
2. Achieve mixed-use and higher densities along key corridors	44	3	35	6	Many countries now have policies supporting TOD. For example, Malaysia finalized its Transit Oriented Development (TOD) and Compact City guidelines
3. Institute policies, programmes, and projects supporting ICT	40	3	26	11	Most countries are developing electronic information services, and some, including Japan, R. of Korea, and Singapore, are world leaders.
II. ***Strategies to Shift towards more sustainable modes***					
4. Require NMT components in transport master plans	57	2	45	10	Most countries are implementing NMT policies and programs with EST Forum support and encouragement. For example, Indonesia is developing pedestrian and bicycle facilities in cities.
5. Improve public transport services	71	0	59	12	Many countries are implementing transit improvements, particularly new BRT projects. For example, Pakistan is implementing several major public transit projects with support of the Japan International Cooperation Agency and The World Bank
6. Reduce private motor vehicle travel through TDM measures	53	3	43	8	Varies widely. Some cities have "carfree days," and a few have road tolls or expanded parking fees. For example, Bhutan is planning to implement a package of fiscal measures (parking fees, road tolls, higher fuel taxes, etc.) and car-free days.
7. More sustainable inter-city passenger and goods transport	41	0	32	10	Many countries are improving rail and marine transport, and support logistics innovations. For example, Thailand supports freight road-to-rail.
III. ***Strategies to Improve transport practices and technologies***					
8. More sustainable transport fuels and technologies	64	2	57	5	Varies widely. Many countries encourage CNG/LNG, bio-fuels and electric vehicles. For example, the Philippines supports cleaner Jeepneys.
9. Set fuel quality, efficiency, and emissions standards	54	1	42	11	Several countries implemented new standards. For example, Viet Nam established national automobile and motorcycle emissions regulations.

10. Establish effective vehicle testing and compliance regimes	53	2	36	15	Many countries now have vehicle inspections and air monitoring systems. For example, Nepal recently established a network of DoT vehicle fitness centres.
11. Adopt Intelligent Transportation Systems	48	5	35	9	Many are implementing ITS, and some (Singapore, Japan and Korea) are world leaders. For example, Bangladesh is implementing electronic fare collection.
12. Achieve improved freight transport efficiency	47	4	33	9	Varies widely. Some countries are just developing basic freight systems, such as paved highways and new ports, while others are world leaders in logistics
IV. *Cross-cutting strategies*					
13. Adopt a zero-fatality policy	53	4	31	18	Most countries have established traffic safety goals and programs. For example, Bhutan's target is to reduce from 17 to below 5 deaths per 100,000 pop.
14. Promote monitoring of transport health impacts	37	6	28	3	Most countries have emissions and crash reduction programs, but fewer have physical fitness or other health programs. For example, Thailand now applies health impact assessments to planning analysis
15. Establish country-specific air quality and noise standards	49	4	35	10	Most countries now have programs, some adopted with EST Forum guidance. For example, Mongolia now has a National Committee on Air Pollution Reduction.
16. Implement low-carbon transport to mitigate climate change	48	1	37	10	Most countries have some GHG emission goals and targets. For example, in 2013 Afghanistan became party to Kyoto Protocol.
17. Adopt social equity as a transport planning and design criteria	42	4	31	7	Many countries have discounted fares, preferential seating or separate vehicles for vulnerable groups. For example, India has women only buses and train cars.
18. Encourage innovative financing mechanisms	37	8	21	8	Some countries use PPP or BOT project delivery, and new funding sources such as parking fees and tolls. For example, the Philippines has a pollution control.
19. Encourage distribution of sustainable transport information	40	5	24	11	Some countries have information campaigns or training programs. For example, the Maldives promotes green vehicle and vessel use.
20. Develop sustainable transport-land use policy institutions	27	3	13	11	Sustainable transport planning responsibility is often distributed among multiple agencies, bus some countries are improving coordination. For example, Japan has a National Institute for Land and Infrastructure Mgt.
Totals	*964*	*64*	*704*	*196*	

This review of 74 Bangkok Declaration progress reports indicates that most countries are making significant progress toward their goals, often based on guidance and support provided through the EST Forums.

3.7. Conclusions Concerning EST Forum Accomplishments

This review suggests that, despite large geographic and economic differences, Asian countries and cities follow similar patterns: as they develop economically, motor vehicle ownership tends to increase, creating significant problems including traffic and parking congestion, accidents, pollution, and inadequate mobility options for non-drivers. The EST Forums help countries respond. They provide a way for government officials, policy advisors, practitioners and civil organizations share information and develop practical solutions.

Many of the survey responses and progress reports examined in this review reference and build on information and guidance from previous EST Forums. They indicate that government policies are changing in response to information presented at EST forums, and are working toward goals defined in EST Forum documents such as the Bangkok Declaration. During the decade, EST Forum participants gained a better understanding of sustainable transport concepts, including how to more clearly define problems, evaluate potential solutions, establish objectives and targets, develop integrated programs, and monitor outcomes. Although it is impossible to determine how much these policies and programs would have been implemented anyway, this review suggests that the EST Forums made a substantial difference; by helping countries set goals and targets, and exposing public officials and practitioners to new ideas and methods, the Forums accelerated and expanded policy changes and program developments that will help create more sustainable transportation systems in Asian countries.

The EST Forums have had the following impacts:

- They have introduced many decision-makers to sustainable transport concepts and strategies.
- They have helped make federal transport and environmental policies more sustainable. These federal reforms, in turn, leverage changes by other levels of government, in land use development policies, in the types of vehicles people use, and in travel patterns.
- They have supported policy changes by development banks and other international organizations that support more sustainable transport investments and planning.
- They have helped jurisdictions (countries and cities) establish sustainable transport planning goals, performance targets, standards and evaluation programs.
- They have helped create an information network including international organizations, government agencies and experts that produces and shares publications and analysis tools.

This indicates that the EST Forums' impacts are large and increasing. Without these events, similar policies would probably have been implemented, but many years later, after less cost-effective solutions were tried and failed. Their benefits are likely to increase in the future as Asian countries continue to develop, increasing the need for sustainable transportation policies.

4. Progress and Challenges of Key Sustainable Transport Factors

This section provides more detailed discussion of various factors related to sustainable transport policy implementation.

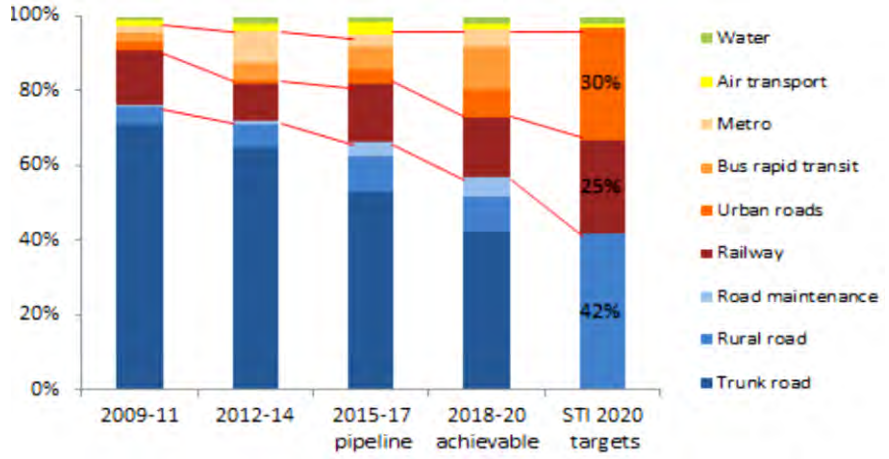
4.1 Sustainable Transport Policies and Programs

Some Asian regions are still developing basic transport infrastructure, such as paved roadways, rail networks and ports. However, once this basic infrastructure exists, it is increasingly important to implement multi-modal planning and demand management strategies to ensure that those facilities meet diverse needs are used efficiently.

Progress

Asian countries and cities are making significant progress toward more sustainable transport policies. One of the most profound changes involves more sustainable policies and planning practices by development agencies such as the Asian Development Bank (ADB) and the Japan International Cooperation Agency (JICA). For example, the ADB established a Sustainable Transport Initiative (STI) in its *Strategy 2020* strategic plan, and is developing technical resources to support this initiative. The plan's transport subsector targets include major shifts from roadway to urban transport and railways investments, as illustrated in Figure 9. These changes are very important because of their leverage effects: if development banks favor more sustainable investments, many jurisdictions will change their planning practices in response.

Figure 9 **Asian Development Bank Transport Lending Trends** (ADB 2014)



The Asian Development Bank is shifting a significant portion of its lending from roadways to more multi-modal investments that reflect its Sustainable Transport Initiative (STI). These leverage much larger shifts in the types of transport projects funded at the local level.

Many countries and cities are also making policy shifts toward more sustainable transport. For example, the Republic of Korea has "green" transportation policies that support resource efficiency, land preservation and urban quality of life (KOTI 2011). Similarly, the Indian Ministry of Urban Development's *National Transport Policy Development Committee* (NTDPC 2012) recommends that, "Urban transport should grow along a sustainable path to support the desired economic growth, protect the environment and to improve the quality of life," and provides specific recommendations for this based on the principles of *Avoid, Shift and Improve*.

Challenges

Despite important reforms, many jurisdictions still apply automobile oriented planning, with continued construction of urban highways and flyovers, and much smaller investments in walking, cycling and bus transit. Similarly, many cities continue to restrict urban development density and heights, and impose high minimum parking requirements.

A major challenge is the large number of existing policies and planning practices that must be changed for more sustainable transportation. For example, developing a Bus Rapid Transit (BRT) network usually requires changing regional transportation plans, funding practices, roadway designs, traffic management and enforcement, transit payment systems, user information, zoning codes, development requirements, and parking management practices. Many policies that affect transport are not directly controlled by transport agencies, such as those in Table 6. For example, governments often help develop offices and housing, but such development often occurs where land is cheap, even if such locations are isolated and increase transport problems. More integrated policies help ensure that development occurs in accessible, multi-modal locations.

Table 6 **Policies Not Directly Controlled by Transport Agencies**

Policy	Impacts on Sustainable Transport Outcomes
Domestic vehicle production subsidies	Increases motor vehicle ownership
Fuel subsidies and low taxes	Increases motor vehicle travel
Restrictions on urban infill development densities, and minimum parking requirements	Reduces development density and increases automobile ownership and use
School consolidation	Students must travel further, resulting in more vehicle trips
Public housing development on cheaper land at the urban fringe	Encourages households to own more cars and drive more than they otherwise would
Citing of high employment industries in areas with poor travel options	Encourages automobile commuting

Many policies that affect transportation sustainability are not directly controlled by transport agencies.

Another major challenge is the long time-frame required for many policy changes to achieve desired effects. For example, a policy to improve active transport (walking and cycling) may require two or three years to develop a plan and design guidelines, and it may take a decade or more to develop enough sidewalks, crosswalks and bike lanes to create a functional network that substantially change how people travel. Similarly, changes in development policies to encourage more construction of affordable-accessible housing can usually only affect a small portion of a city's total housing supply; much of the additional housing developed will be completed decades in the future. For these reasons, sustainable transport planning requires long-term thinking, and patience.

4.2. Institutions Cooperated under Regional EST Forum in Asia

Many Asian government, research and academic organizations now support sustainable transport, and some are EST Forum participants. During the last decade these institutions have expanded, matured, and become more influential. Examples are described below.

Government Ministries and Agencies

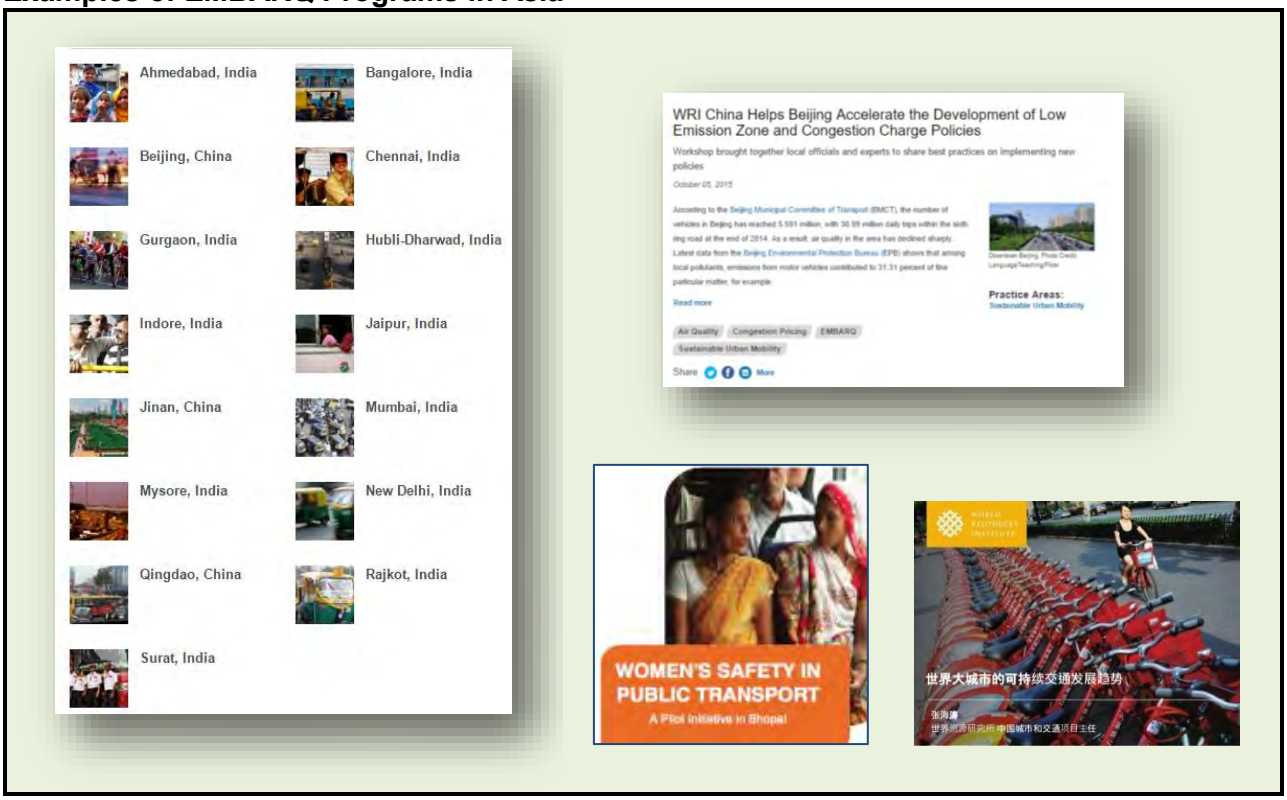
Government ministries and agencies have important roles to play in creating more sustainable transportation. These organizations affect transport policies and planning practices in many ways. As the review of EST country and city reports indicates, many Asian transportation agencies are implementing more sustainable policies and planning practices.

International Organizations

EMBARQ

Since 2002, EMBARQ has worked to make sustainable transport a reality in cities throughout the world. It has offices in Brazil, the People's Republic of China (hereafter China), India, Mexico, Turkey, and the United States. It works with local and national authorities, businesses, and civil society to create safe, accessible, and attractive urban mobility solutions. EMBARQ is part of Word Resources Institute (WRI) Ross Center for Sustainable Cities. It is an EST Asia partner.

Examples of EMBARQ Programs in Asia

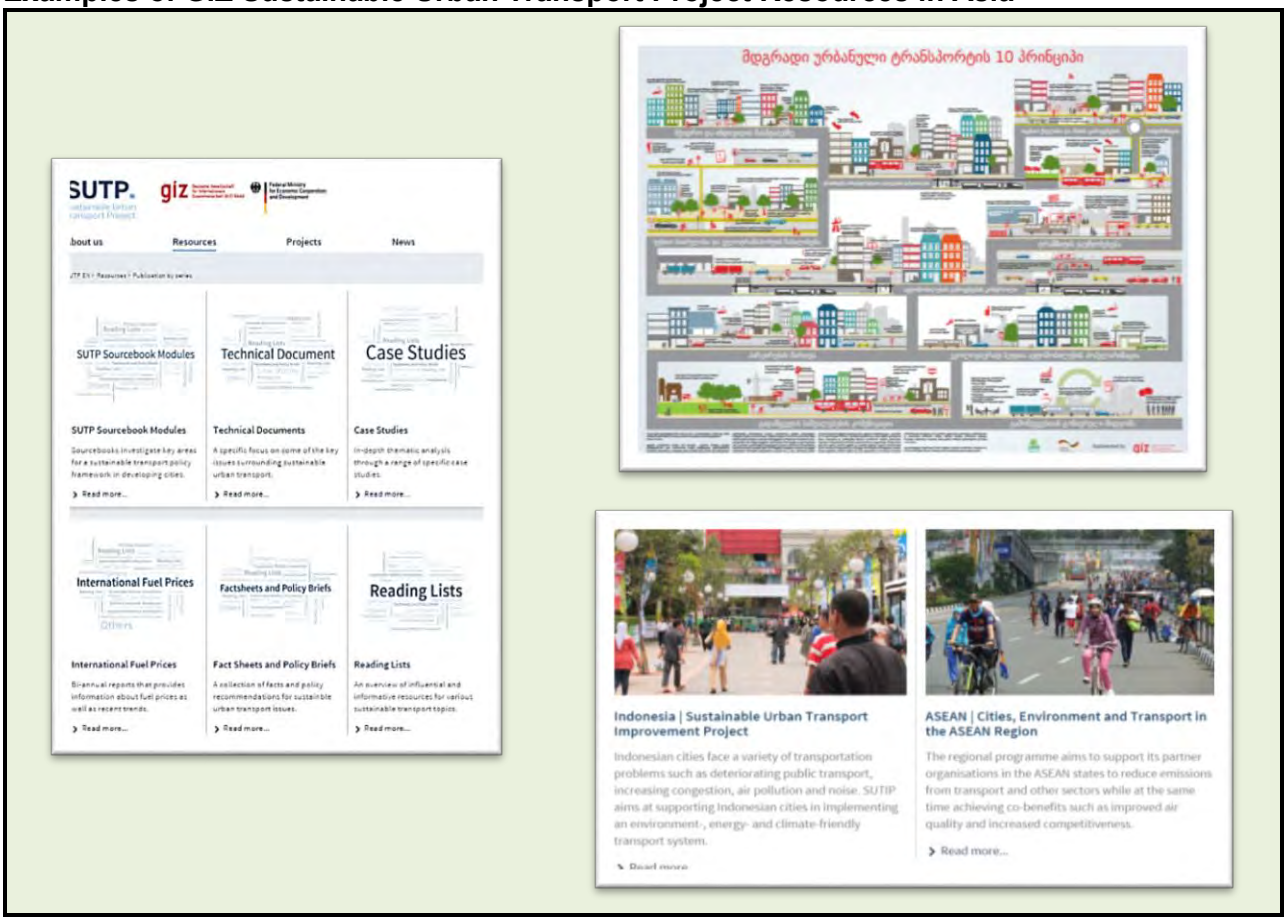


EMBARQ works to promote sustainable urban development around the world, particularly in Asia. It sponsors research, information sharing, publications and professional development programs.

German International Cooperation

The German International Cooperation (GIZ) Sustainable Urban Transport Project (SUTP) provides policy advice and capacity building to help create more sustainable cities. During last decade, SUTP has published dozens of documents and sponsors numerous technical sharing programs, many targeted to Asian countries. It is an EST Asia partner.

Examples of GIZ Sustainable Urban Transport Project Resources in Asia

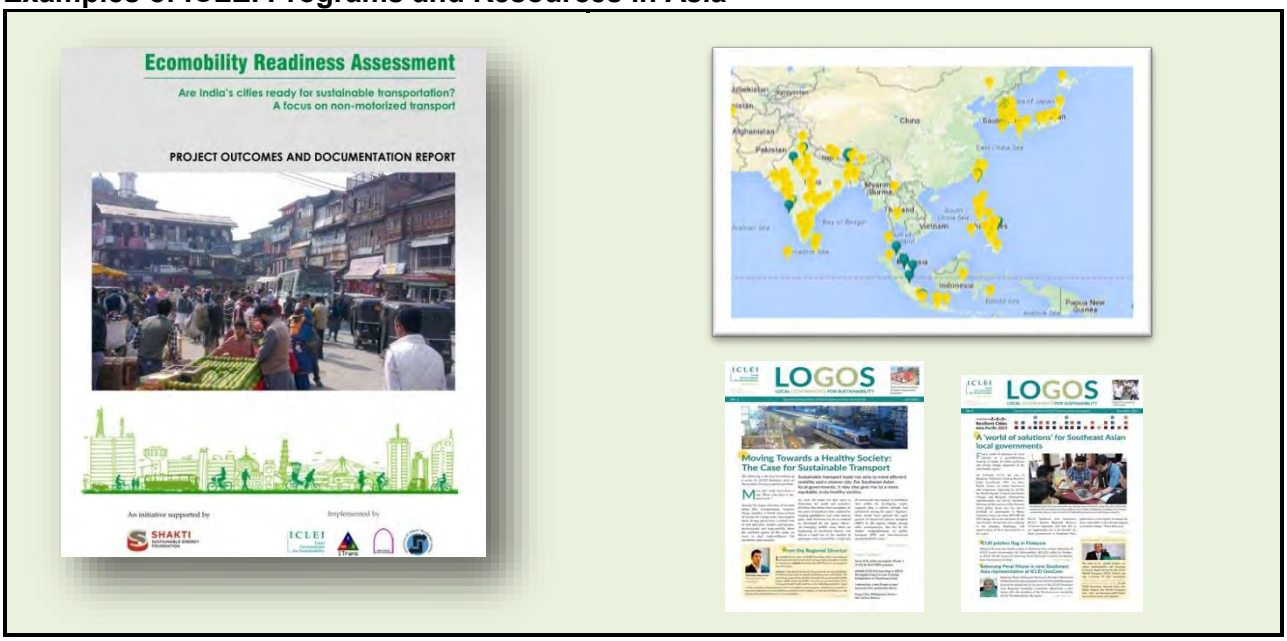


The GIZ Sustainable Urban Transport Project (SUTP) provides policy advice and capacity building to help create more sustainable cities.

ICLEI-Local Governments for Sustainability

The International Council for Local Environmental Initiatives (ICLEI) includes more than 1,000 regions, cities and towns, containing more than 20% of the world's population, that are committed to building a sustainable future.

Examples of ICLEI Programs and Resources in Asia

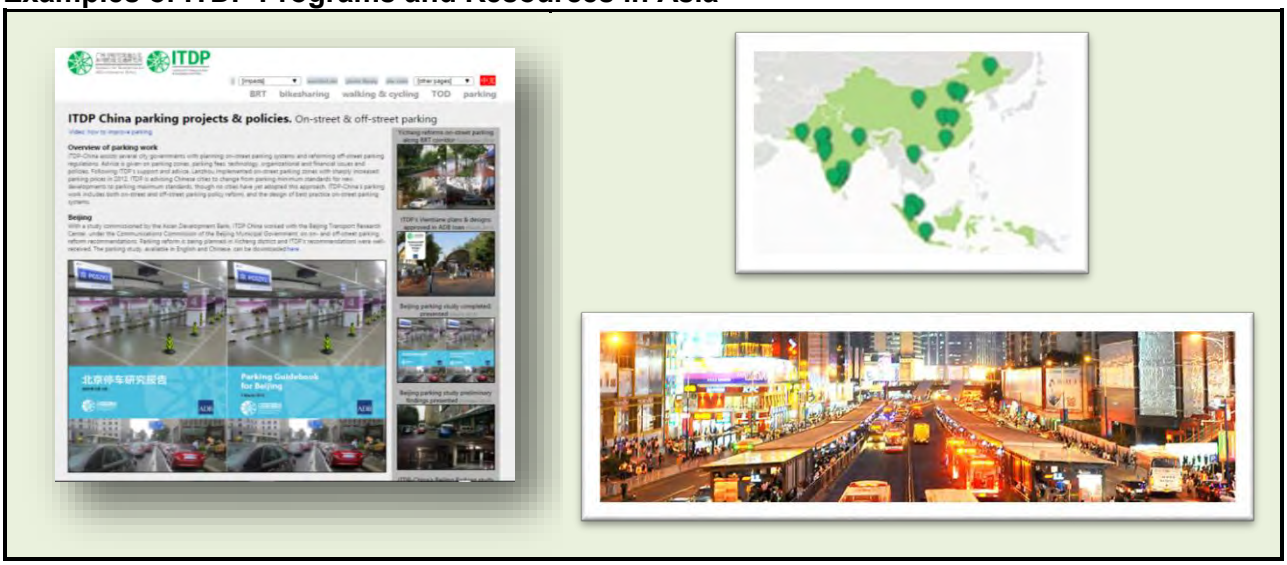


The International Council for Local Environmental Initiatives (ICLEI) provides policy advice and information.

Institute for Transportation and Development Policy

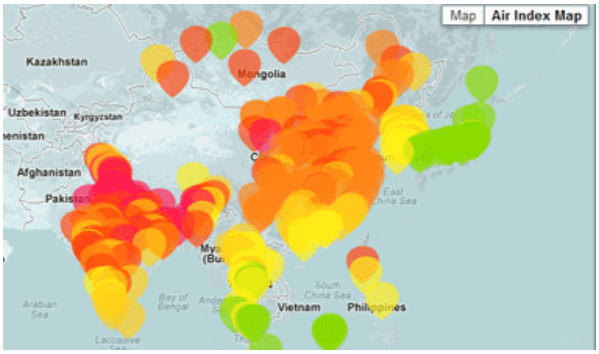
The Institute for Transportation and Development Policy (ITDP) works around the world to support transport policies and planning practices that make cities more livable, equitable, and sustainable. ITDP uses its know-how to influence policy and raise awareness globally of the role sustainable transport plays in tackling greenhouse gas emissions, poverty and social inequality. ITDP has offices around the world, including China, India and Indonesia.

Examples of ITDP Programs and Resources in Asia



The Institute for Transportation and Development Policy (ITDP) provides policy advice and information to support sustainable transport planning. Its programs have been very successful in Asia.

Partnership on Sustainable, Low Carbon Transport



The Partnership on Sustainable, Low Carbon Transport (SLoCaT) promotes the integration of sustainable transport in global policies on sustainable development and climate change. SLoCaT consists of a multi-stakeholder partnership of over 90 organizations, which is supported by the SLoCaT Foundation. It is a multi-stakeholder partnership with more than 90 members. SLoCaT provides coordination among these organizations, and leadership on key issues such as its *Global Transport Intelligence Initiative*, which is working to improve and standardize planning data collection, and efforts to include sustainable transport in world economic development and climate change emission reduction agreements. It is an EST Asia partner.

Asia Regional Organizations

Clean Air Asia

Clean Air Asia is an international non-governmental organization that leads the regional mission for better air quality and healthier, more livable cities in Asia. Its goal is to reduce air pollution and greenhouse gas emissions in 1000+ cities in Asia through policies and programs that cover air quality, transport and industrial emissions and energy use. It works with ministries (energy, environment, health and transport), the private sector and development agencies to provide leadership and technical knowledge on science-based, practical solutions. Its biannual *Better Air Quality Conference*, held since 2002, attracts over 1,000 policy makers, practitioners and industry leaders in achieving cleaner air and more livable cities.

Institute for Global Environmental Strategies

The Institute for Global Environmental Strategies (IGES) was established in March 1998 under an initiative of the Japanese government and the Kanagawa Prefecture based on the *Charter for the Establishment of the Institute for Global Environmental Strategies*. Its goal is to achieve a new paradigm for civilization and conduct innovative policy development and strategic research for environmental measures, reflecting the results of research into political decisions for realizing sustainable development both in the Asia-Pacific region and globally.

South Asia Co-operative Environment Programme

South Asia Co-operative Environment Programme (SACEP) is an inter-governmental organization, established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region.

National and Local Organizations

Center for infrastructure, Sustainable Transportation and Urban Planning

The Center for infrastructure, Sustainable Transportation and Urban Planning (CiSTUP) of Indian Institute of Science, established in 2009, provides sustainable transportation research and training in India and abroad. It is working urban and community planning and mobility issues, including analysis of the causes and consequences of urban sprawl, strategies for more integrated urban land use and transport planning, plus planning and zoning regulation reforms to achieve sustainable development goals.

Centre for Science and Environment (CSE)

The Centre for Science and Environment (CSE) is a network of professionals interested in environmental and sustainable development issues, located in New Delhi, India.

The Korean Transport Institute

The Korean Transport Institute (KOTI) is an official research agency for the government of the Republic of Korea. Its mission is to provide information and policy guidance for creating optimal transport systems in Korea and around the world.

China Urban Transport Research Centre

Established in 2006, with the support of Volvo Research and Educational Foundations, The China Urban Sustainable Transport Research Center (CUSTReC) strives to be a national, regional, and international Center of Excellence for research and development, communication, education and training in future urban transport.

China Sustainable Transport Center

The *China Sustainable Transportation Center* (CSTC) is the technical center for China Sustainable Cities Program. CSTC is dedicated to creating sustainable urban and transport systems, promoting compact land use and transit-oriented development patterns, relieving urban

congestion and reducing greenhouse gas emission, and therefore creating low-carbon, sustainable and livable cities. It supports sustainable city planning, sustainable transportation design, and research on relevant policies in China.

Beijing Transport Demand Management

TDM in Beijing – Emission Reduction in Urban Transport is a Sino-German project that works to identify and evaluate suitable non-technical measures to reduce vehicle traffic and associated pollution emissions. According to the 2009 action plan and the 2011 development plan, the municipal government intends to implement an ambitious programme of policies and measures. The project partners will focus on innovative, non-technical measures.

Challenges

Although some public and private institutions are leaders in promoting and applying sustainable transportation planning in Asia, others are only starting to understand the concepts. Because transportation affects and is affected by many factors, sustainable transportation planning requires coordination between different jurisdictions, agencies and community organizations. For example, in order to create a high quality public transit network with transit-oriented development it is necessary to coordinate public or private transit service providers, roadway planners, municipal planning agencies, commercial developers, property owners, and neighborhood associations. Such networks often connect multiple municipalities, and so require reginal planning and inter-jurisdictional cooperation. Some countries have governance structures that support coordinated planning, but many do not. Where it is lacking, governance reforms, such as the creation of regional planning and financing organizations, may be critical to success.

Most developed countries have well-established professional development programs, including requirements for professionals to regularly upgrade and update their skills (for example, requirements for a certain number of professional development credits each year), and professional organizations that meet regularly to share information and hear speakers. These provide an excellent way to disseminate information and support new ideas related to sustainable transport planning. Many Asian countries could benefit from expanded professional development resources and requirements for planners and engineers.

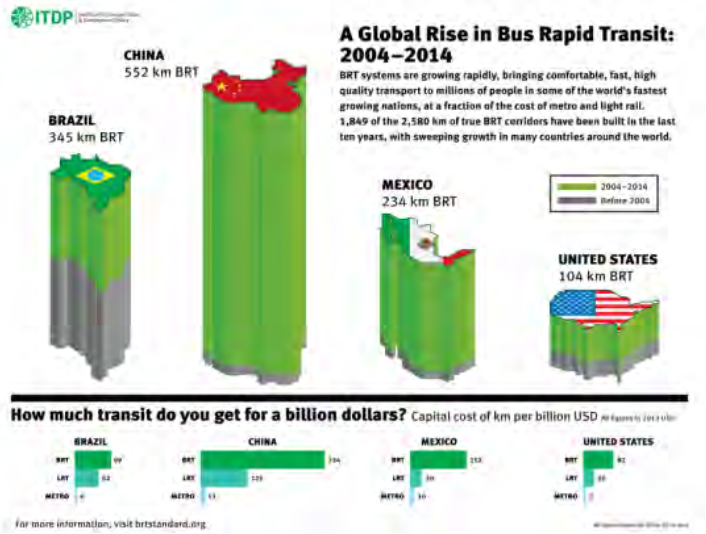
4.3. Infrastructure Development

Asian countries are currently engaged in major infrastructure development programs, including trillions of dollars in highway, rail, port and airport construction projects. During the last decade, there have been growing efforts to incorporate sustainability concepts into these programs (Venkatachalam 2010). However, there are often major gaps between official policy goals and actual planning practices. Some examples of these changes are examined below.

Bus Rapid Transit in Asian Cities

Bus Rapid Transit (BRT) is a high-quality bus transit system that includes design features which result in fast, frequent, convenient and comfortable service. Compared with roadway expansions and rail transit systems, BRT tends to be very cost effective and quick to develop. During the last decade, the number of BRT systems, and ridership on those systems, has grown rapidly, particularly in Asia. Many EST Forum participants support BRT development, and have used previous Forums to share information about this concept (EMBARQ India 2009 & 2014). It is unlikely that such rapid BRT system growth could have occurred without it.

Figure 10 **BRT Systems in Asia** (http://brtdata.org and ITDP 2014)



During the last decade Asia has embraced BRT. There are now more BRT systems in 41 Asian cities, and more are being developed, due largely to EST Forum members' leadership.

Despite this rapid growth, BRT has only achieved a small portion of its total potential. In smaller, developing cities, BRT can provide higher quality transit service than is currently provided by informal taxis and buses. In larger and more affluent cities, BRT can attract discretionary travelers (people who would otherwise travel by automobile), which helps reduce traffic and parking congestion, accidents and pollution emissions. Even in cities with rail transit services, BRT can provide efficient feeder services and accommodate continued growth. As a result, virtually every city should have an integrated network of high-quality, high-frequency bus routes with dedicated bus lanes.

Improving Active Transport (Walkability and Cycling) Conditions

Although active transport modes (walking and cycling) are common travel modes in Asia, and play important roles in an efficient and equitable transportation system (see box below), they tend to be overlooked and undervalued in conventional transport planning. In the 1980s, the World Bank and other major development agencies were criticized for ignoring these modes (Hook 1994); to its credit, the Bank responded by hiring some of their critics as non-motorized transport policy consultants (Replogle 1992). In recent years, there has been a boom in active transport planning by many agencies and organizations.

Active Transport Roles in An Efficient and Equitable Transport System

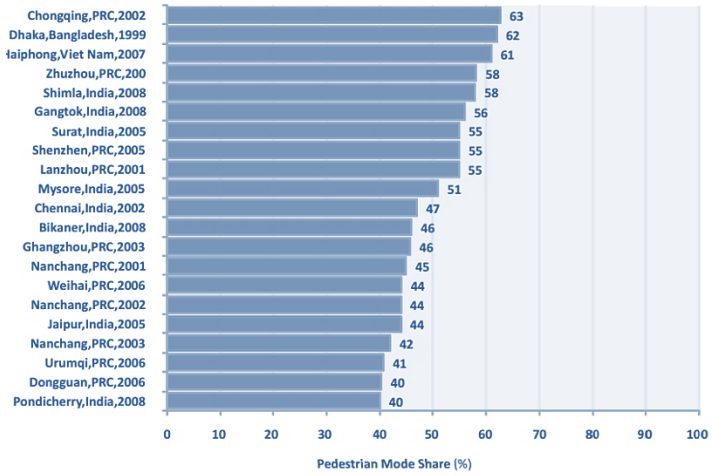
- A major portion of trips are made entirely by active modes, and even trips that involve motorized travel usually include active links. For example, most public transit trips include walking and cycling links and motorists walk between parked cars and their destinations. As a result, walking and cycling improvements can help improve public transit travel, and by expanding the pool of parking spaces that serve destinations, help solve parking problems.
- Active transport improvements can help achieve many planning objectives including reduced traffic and parking congestion, energy consumption and pollution emissions, and help create more compact, Smart Growth urban development.
- Walking and cycling provide affordable, basic transport. Physically, economically and socially disadvantaged people often rely on walking and cycling, so improving active transport can help achieve social equity and economic opportunity objectives.
- Active transport is the most common form of physical exercise. Increasing walking and cycling is often the most practical way to improve public fitness and health.
- Pedestrian environments (sidewalks, paths and hallways) are a major portion of the public realm. Many beneficial activities (socializing, waiting, shopping and eating) occur in pedestrian environments. Residential and commercial districts and resort communities depend on good walkable environments to attract customers.
- Walking and cycling are popular recreational activities. Improving walking and cycling conditions provides enjoyment and health benefits to users and supports related industries including retail, recreation and tourism.

The ADB report, *Walkability and Pedestrian Facilities in Asian Cities: State and Issues*, (Leather, et al 2011), and pedestrian-oriented planning in specific cities (Efroymson 2012) are examples of these efforts by major infrastructure investment agencies. These studies examine existing walking conditions, identify problems and recommend reforms. The ADB report concludes:

> "These actions need the support of key stakeholders, identified to be the national government, city government, civil society, development agencies, and the private sector. The city government is identified as the key stakeholder group for pedestrian facility development and implementation. The national government's substantial role is in the development of policies catering to pedestrians or building the capacity of city governments' efforts to develop their own policies.

There is a pressing need to overhaul the existing pedestrian guidelines or develop appropriate guidelines for Asian cities. The available guidelines are often ambiguous or inequitable and rarely enforced in cities. Traffic experts still rely on speed as the basis of performance measurement in urban areas, as found in the United States Highway Capacity Manual. This antiquated view emphasizes the improvement of speed rather than planning for streets that promote accessibility for all users. In practice, many pedestrian level-of-service concepts are based on vehicle travel, in which faster speed indicates efficient flow of foot traffic."

Figure 11 **Pedestrian Mode Share in Asian Cities** (Leather, et al. 2010)



Although walking is the most common travel mode in most Asian cities, it often receives little consideration in conventional transport planning. Sustainable transport planning recognizes the important roles that walking plays in an efficient and equitable transport system and so tends to provide far more support for this mode. New planning resources help make this possible.

China's Ministry of Housing and Urban-Rural Development has produced the *Guideline for Urban Pedestrian and Bicycle Transportation System Planning and Design*, the first national-level technical policy document of its kind in the field. The Guideline was developed by China Academy of Urban Planning and Design (CAUPD) and China Sustainable Transportation Center (CSTC), supported by the Energy Foundation China Sustainable Cities Program (CSCP).

Figure 12 **Chinese Active Transport Planning Guidelines** (CAUPD & CSCP 2014)

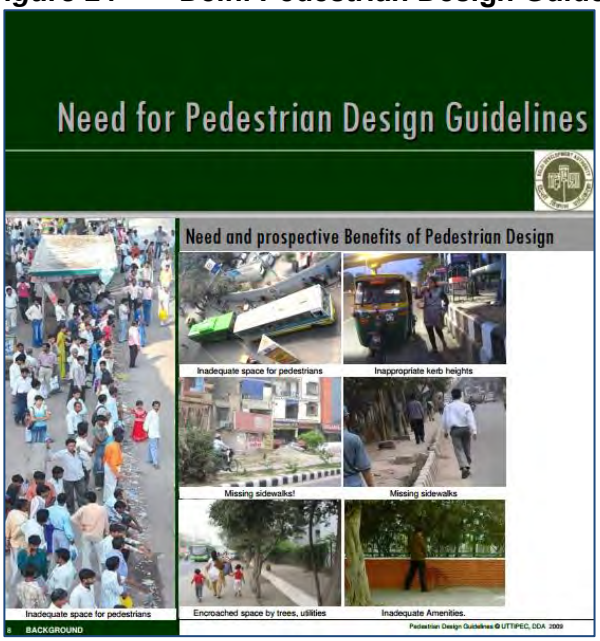
The Republic of Korea has made major commitments to active transport (Shin, et al. 2013). For example, the *EcoMobility World Festival* held September 2013 in Suwon, South Korea, showcased an ecomobile urban lifestyle in the neighborhood of Suwon City, which became car-free for the month. The Festival was jointly implemented by the City of Suwon under the leadership of Mayor Yeom, ICLEI and UN-HABITAT.

Figure 13 **Suwon City EcoMobility World Festival (**http://emwf2013.iclei.org**)**

The EcoMobility World Festival held September 2013 in Suwon is an example of the Republic of Korea's efforts to promote active transport. Other Korean cities are also devoting significant resources to improving and encouraging walking and cycling.

Civic groups in India are working to improve walking and cycling conditions (CSE 2009), and some government agencies including the National Transport Policy Development Committee and the Delhi Development Authority, which published the *Pedestrian Design Guidelines: Don't Drive…Walk*, are institutionalizing more pedestrian-oriented urban transportation planning.

Figure 14 **Delhi Pedestrian Design Guidelines**



Design guidelines help institutionalize new concepts and practices, such as this document for improving the accommodation of pedestrians in Indian cities.

Clean Air Asia (CAA 2012) conducted a walkability study in six Indian cities, including three big cities (Chennai, Pune and Bhubaneshwar), and three smaller but growing cities (Surat, Rajkot and Indore). The project's objective is to improve the state of walking and pedestrian facilities in Indian cities by policy, strategic documents, regulations and project development. Based on the study findings it developed specific recommendations for improving walking conditions, and identified various stakeholders who should play a role in developing policies and projects to improve walkability in Indian cities.

Complete Streets refers to roadway design and operating practices intended to safely accommodate diverse users and activities including pedestrians, cyclists, motorists, public transport users, people with disabilities, plus adjacent businesses and residents. Complete Streets planning recognizes that roadways often serve diverse functions including through travel, recreational walking, socializing, vending, and nearby living, which must be considered and balanced in roadway design and management. Complete Streets planning is an effective way to implement more multi-modal planning and encourage more compact development. It is supported by many professional organizations such as the Institute of Transportation Engineers and the American Planning Association, and although Asian transport planners increasingly understand the importance of accommodating diverse modes and users (NTDPC 2012), the term, Complete Streets, is only starting to be recognized in developing countries.

Challenges and Recommendations

New transportation infrastructure is being developed throughout Asia. A major challenge is to incorporate sustainable planning and design principles at each stage of development, for example, to ensure that new roadways are planned and built to safely accommodate multiple modes (walking, cycling and public transport for all social groups), and to support TDM policies and Smart Growth principles.

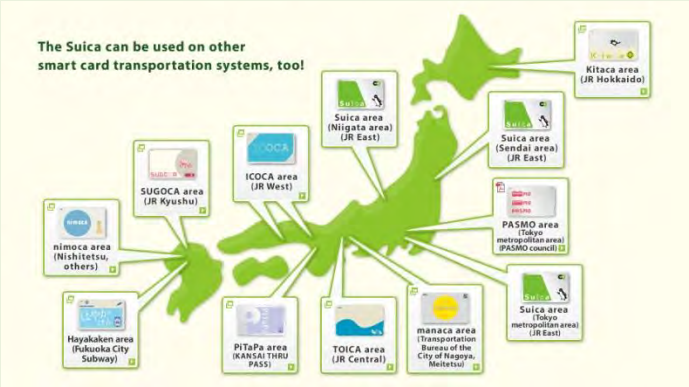
One specific challenge is the need for credible modelling tools that can predict the impacts, including greenhouse gas emission reductions, from more sustainable policies and projects in a particular situation (Bongardt, et al. 2011). In some cases, targeted funds and credits are available for strategies that reduce emissions, but only if funders and regulators have confidence that projected benefits will occur.

4.4. Technologies

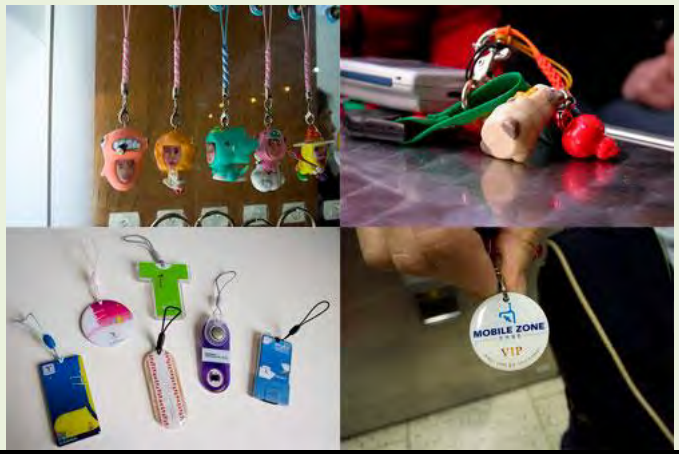
Some Asian countries are world leaders in developing and operating state-of-art transportation systems, including sophisticated traffic management and user information, payment technologies, and traffic control systems. Technology implementation is particularly high in Singapore, Japan and the Republic of Korea.

Contactless Transit Fare Payment Systems in Japan and South Korea
(http://bit.ly/1NFQcVV), 17 April 2014

More than 90% of the total global value of Near Field Communication (NFC) payment transactions was generated in the Asia Pacific region, particularly in Japan and South Korea. Japan has more than 70 million NFC-enabled devices, compared with approximately 3 million in the US. In December 2010 alone, 9.8 million Japanese consumers used their mobile wallet to make a purchase, including 2.7 million public transport fare purchases using mobile telephones. More than 30 million Suica Cards have been issued, which can be used for transport fare and other purchases.



South Korea's contactless payment market has at its centre the T-money services, which were first implemented in 2004 as a basic transit fare card in Seoul, but evolved into a rechargeable smart card that can be used to purchase public transit fares in all major Korean cities and for other purchases. T-Money 'cards' come in different shapes and sizes ranging from standard credit cards, key chains, charms, watches, rings, stuffed animals, and embedded in mobile phones.



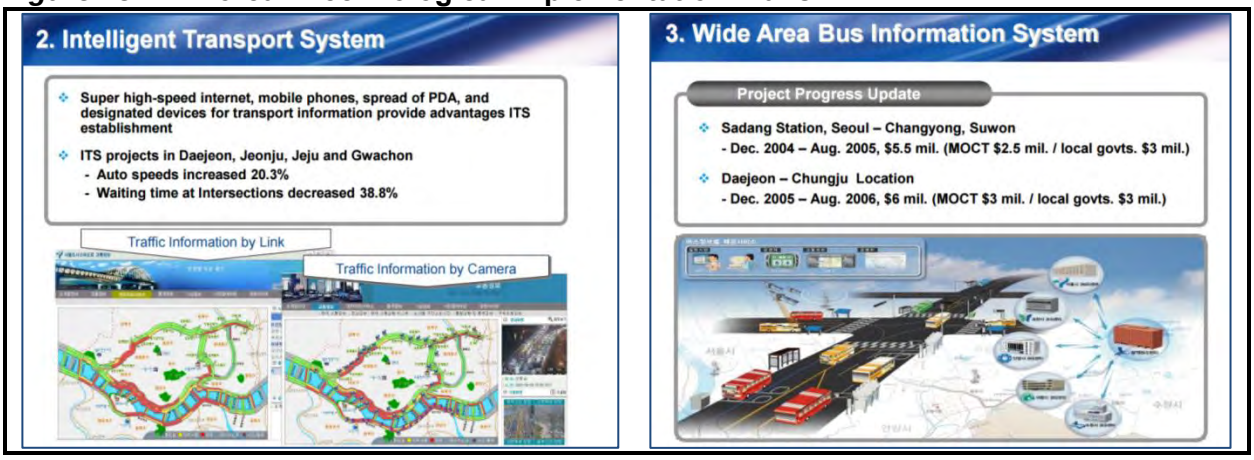
New technologies, including improved logistics, vehicles and terminals, are also important for improving freight transport sustainability (CAA 2015). Freight is the fastest-growing source of transport emissions around the world. Sustainable transport policies tend to focus on personal travel and often overlook freight. Fright transport efficiency can be improved by policies that result in cleaner fuels, higher fuel economy, infrastructure improvements, fleet upgrades and information technology. Clean Air Asia's *Green Freight Website* provides access to information on policies and programs, technologies and logistics, and data relevant to the freight sector, especially for developing countries.

Challenges and Recommendations

Despite major progress in some cities, many Asian cities still use older technologies and lack implementation plans to deploy better technologies, or are failing to integrate programs so new information or payment systems only function on a portion of the transport network. For example, as automobile ownership increases in a city, it is useful to develop a standard regional platform for parking information and payment systems that includes both municipal and commercial parking facilities. Similarly, as public transit systems evolve from informal taxi and buses services to formalized public bus systems, it is useful to establish a regional platform for transit information and fare payment systems, accessible by Internet and mobile telephones.

Integrated technological implementation requires coordinated planning between public agencies, private companies and users. This can be challenging. Without government leadership, the technological platforms may become fragmented, reducing the quality of service provided to users.

Figure 15 **Korean Technological Implementation Plans**

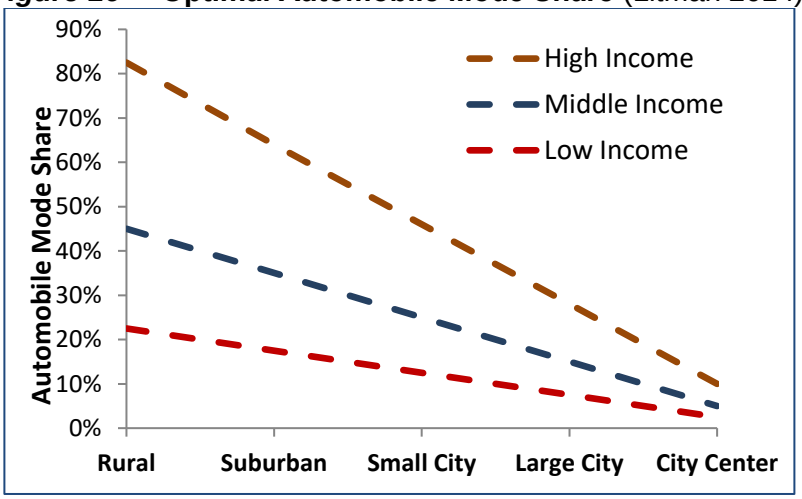


In order to maximize impacts and benefits, technological innovation often requires strategic planning and coordination between various stakeholders.

4.5. Transportation Demand Management

Cities are, by definition, places where many people and activities locate close together, so urban space is always scarce and valuable. As a result, efficient and equitable urban transport requires limiting vehicle ownership and use to what city streets can accommodate (Figure 16). Many Asian cities are implementing transportation demand management (TDM) strategies to reduce vehicle travel to what roadways can efficiently accommodate. TDM strategies can significantly reduce the growth in vehicle travel and associated problems (ITF/OECD 2015).

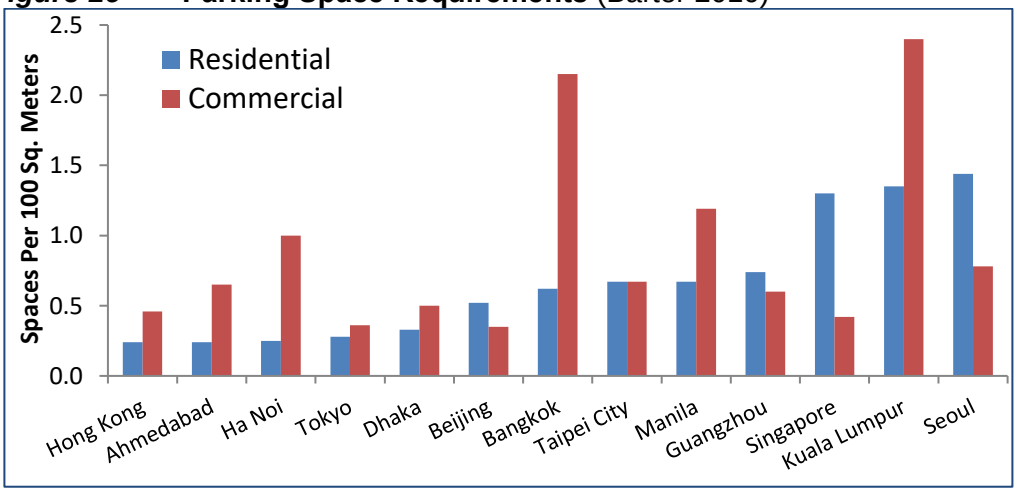
Figure 16 **Optimal Automobile Mode Share** (Litman 2014)



As cities become larger and denser, the portion of trips made by automobiles should decline. With an efficient transport system, even wealthy people walk, bicycle and use public transit for a major portion of urban trips.

An important TDM strategy is to reduce or eliminate minimum parking requirements for new developments, and shift to more market-based parking supply, so motorists pay directly for the parking spaces they use. Many Asian cities continue to impose high minimum parking requirements on new developments (Figure 16), but this is changing as sustainable transportation advocates and practitioners become more familiar with more efficient parking management strategies (SUTP 2010; Weinberger, et al. 2013).

Figure 16 **Parking Space Requirements** (Barter 2010)



Many Asian cities require developers to provide large amounts of parking. Such policies subsidize vehicle ownership and use, and discourage affordable urban infill, which contradicts sustainable transport goals.

Some jurisdictions, most notably Tokyo, require motorists to demonstrate that they have an off-street parking space in order to register a vehicle in that city. This rule reduces on-street parking congestion problems and has reduced per capita private car ownership (Di 2013).

Singapore uses a combination of high vehicle licensing fees and road tolls to control vehicle ownership and use. Hong Kong Special Administrative Region of China (hereafter Hong Kong) does not directly restrict vehicle ownership but has very high parking prices and crowded streets. These policies significantly reduce vehicle ownership and use, even in these affluent and economically successful cities: Singapore has just 10.1 cars per 100 residents, and Hong Kong has just 6.3 cars per 100 residents (Di 2013).

Singapore Vehicle Control Strategies

New car buyers are required to purchase one of a limited number of *Certificate of Entitlement* (COE) which are auctioned to the highest bidders.

Motorists are charged for driving on major roads using an Electronic Road Pricing (ERP) system. Cars are equipped with an In-Vehicle Unit (IU), which automatically deducts a fee each time the vehicle passes under a gantry.

Singapore uses Electronic Road Pricing (ERP) that charges for driving on major roads during peak periods

Chinese cities have adopted various programs to restrict private vehicle ownership and use (Suwei and Qiang 2013). Shanghai holds auctions, Beijing uses lotteries, and Guangzhou uses a hybrid system to allocate vehicle licenses. Since 2008, Beijing prohibits vehicles from driving on public roads one day per week based on their license plate numbers, and since 2009, prohibits vehicles that have not passed emission tests (called “yellow-label”) from driving in the city center. These programs provide real world testing of innovative strategies.

Challenges and Recommendations

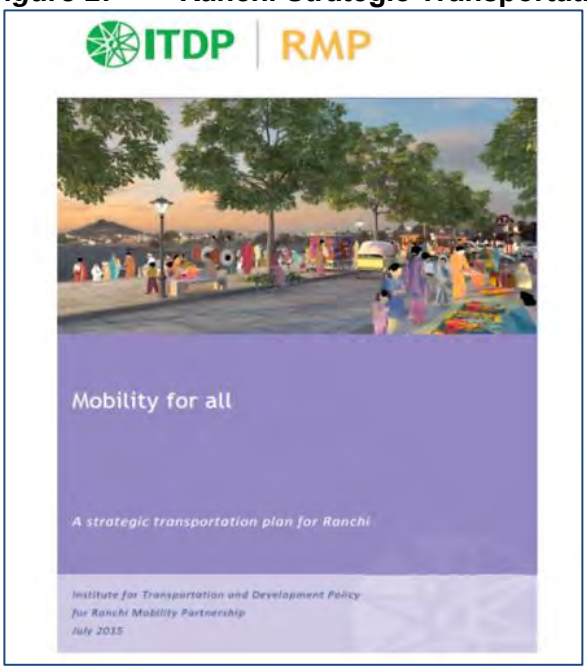
TDM can provide many large benefits, in fact, it is critical for achieving many sustainable transportation goals (ITF/OECD 2015), and considering all impacts is often more cost-effective than road and parking facility expansion, but it faces significant political and institutional obstacles. There is often significant political opposition to more efficient transportation pricing or road space reallocation, and transportation budgets often have funds dedicated to roads and parking facilities that cannot be used for alternative modes or demand management programs.

Overcoming these obstacles requires public education about the overall benefits of TDM, more comprehensive evaluation which considers all impacts when evaluating TDM strategies, and least-cost funding, which allows TDM programs to be implemented whenever they are the most cost effective solution to transport problems.

4.6. Strategic Transportation Plans

Strategic transport plans are key to assembling the combination of policies and projects for more sustainable transportation in an urban region or city. A good example is the strategic transport plan created for Ranchi, India, the capital of Jharkhand. Ranchi and the other cities of Jharkhand are growing rapidly. The use of personal motor vehicles is expanding rapidly in Ranchi, leading to congestion in central areas and safety challenges. Ranchi current lacks a formalized public transport system; most people rely on walking and paratransit for their day-to-day travel. Until recently, the city's solution to traffic problems consisted primarily of road widening and flyovers. To develop more equitable, affordable, safe, accessible, and sustainable transport in Ranchi, a variety of civil organizations with diverse interests and backgrounds established the Ranchi Mobility Partnership (RMP). The RMP obtained a grant to lead a comprehensive, multi-stakeholder strategic planning process which produced the report, *Mobility for All: A Strategic Transportation Plan for Ranchi*.

Figure 17 **Ranchi Strategic Transportation Plan** (ITDP 2015)



The Ranchi Mobility Partnership obtained a grant to fund the development of a comprehensive, multi-stakeholder strategic planning process for more equitable, affordable, safe, accessible, and sustainable transport in their city.

The process began by developing the *Ranchi Mobility Charter* which outlines the coalition's position on mobility issues. It established the principles that should guide transport planning:

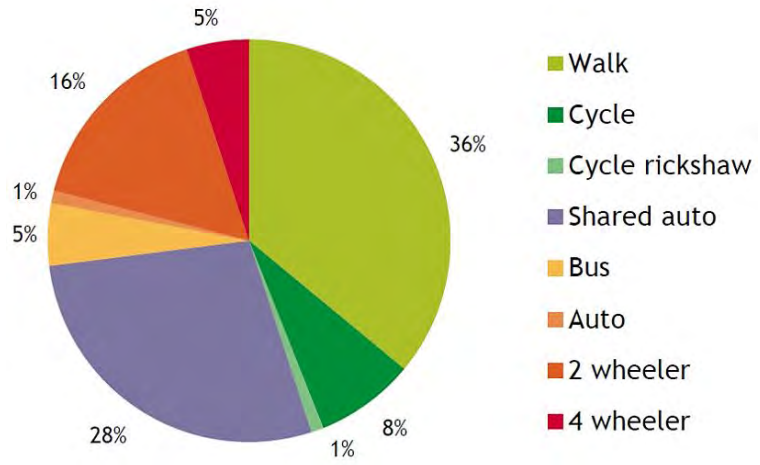
- *Equity:* The needs of all people (including the differently able), regardless of the modes of transport they use, should be the primary criteria in the design of transport systems.
- *Sustainability:* The transport system should consume as few resources as possible; yet provide attractive, comfortable, and convenient service. The resources in this context include urban space, clean air, fossil fuels
- *Liveability:* Urban landscapes should provide ample public spaces for uses like casual recreation, relaxation, social gathering, and managed street-side vending.

RMP's Charter stresses that transport planning should focus on the movement of people, not vehicles, a goal clearly expressed in the National Urban Transport Policy (NUTP), but reflects a major change from traditional traffic and transport studies that emphasize movement of vehicle traffic. In light of these principles, the Mobility Charter calls on the city to carry out a specific set of infrastructure initiatives:

- Improve, expand, and manage a high-quality, bus-based public transport system.
- Develop design guidelines for complete streets that take into account all street users, especially pedestrians, cyclists, and various stationary activities.
- Construct complete streets that allocate street space equitably among all users.
- Develop an effective parking management framework.
- Develop compact, pedestrian friendly neighbourhoods around public transport

The planning process used comprehensive and multi-modal analysis, including a comprehensive travel survey that included all demographic groups (Figure 18). It also investigated specific concerns and problems, such as special risks that women, transit service quality, vehicle parking problems, and air pollution. The results provide a foundation for rational transport planning that serves all system users and addresses diverse planning objectives.

Figure 18 **Ranchi Mode Share Data** (ITDP 2015)



The strategic planning process included comprehensive travel surveys:

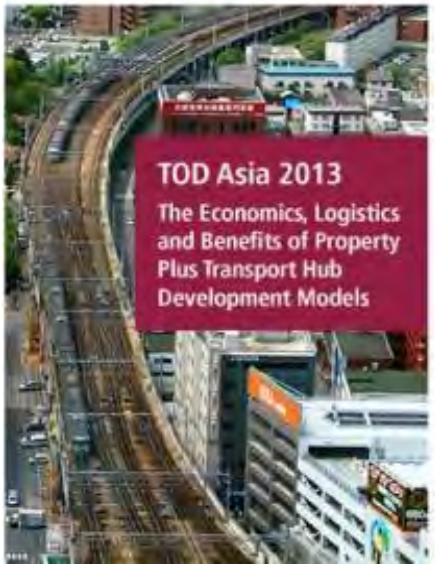
A household survey of 7,100 individuals in various demographic groups.

- *On-road, interview-based surveys.*
- *Traffic counts at various strategic locations.*
- *Surveys of public transport users.*
- *Mapping of existing street and transit services.*
- *Government data on the vehicle population, traffic accidents, and ambient air quality.*

Based on this research, the researchers developed specific recommendations for roadway and public transit service improvements, roadway design and operational changes, parking management, and land use development policies, that reflect international best practices for more efficient and equitable, and therefore more sustainable, urban transportation planning. The study also includes detailed administrative and funding proposals, a five-year implementation plan, and analysis of resulting economic, social and environmental impacts.

4.7. Integrated Transport and Land Use Planning

Transportation and land use planning can be integrated in ways that support more sustainable transportation. For example, development policies can support more compact, mixed walkable development, along major transit corridors, in order to maximize transit ridership; this is often called *transit-oriented development* or *Smart Growth.*

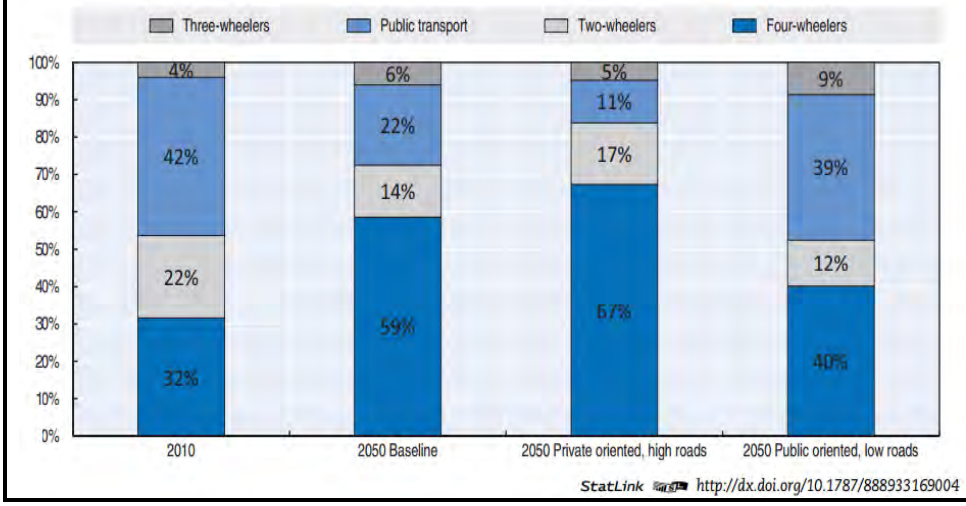


Most transportation professionals understand the basic concepts of integrated planning, and a number of good resources are now available to provide guidance, but there are still major problems with implementation (Suzuki, Cervero and Iuchi 2013). For example, many cities restrict development densities, impose minimum parking requirements, or in other ways compact urban infill development (Litman 2014). In other cases, municipal governments encourage greenfield development outside existing urban areas, which isolates residents and increases their transport costs.

4.8. Transportation Demand Management in Developing Country Cities

The study, *Urban Passenger Transport Scenarios for Latin America, China and India* (ITF/OECD 2015) used the MoMo model to predict how various policy scenarios could affect future travel patterns in rapidly-developing Latin American, Chinese and Indian cities. The analysis indicates that if urban policies continue to promote private motor vehicle use by permitting sprawl, letting public transport expansion lag population growth, significant roadway expansion and low fuel prices, public transport accounts for only 11% of urban mobility in Latin America and India, and 9% in China by 2050. In contrast, polices that limit sprawl, prioritise public transport over urban road expansion and raise fuel prices can significantly increase public transport travel and reduce automobile travel, and associated costs.

Figure 19 **Modal Share Projections in Indian cities, 2010 and 2050** (ITF/OECD 2015)



Policies that improve public transit services, reduce sprawl and discourage automobile travel result in large increases in public transit mode share and reductions in motorcycle and car travel, and associated costs in rapidly developing cities.

4.9. Rural Transportation Planning

Although EST Forum members are experiencing rapid urbanization, and environmental problems such as air and noise pollution tend to be most severe in cities, the Forums also acknowledge the importance of improving rural transport. And estimated 30% of the global population will remain rural in 2030, more than 1 billion people worldwide currently lack access to an all-season road, and nearly 80% of the extreme poor live in rural areas. As a result, rural transport improvements are essential for achieving several recently-adopted Sustainable Development Goals (SDGs) and associated targets. Rural transport makes direct contributions to Targets 1.4 (access to basic services), 2.1 (access to nutritious food), 9.1 (reliable and resilient infrastructure), and 11.2 (sustainable transport systems). Rural transport also makes indirect contributions to Targets 6.1 (access to safe drinking water), 12.3 (reduction of food loss), and 13.1 (climate adaptation).

Efficient rural transport is crucial to ensuring food security, developing agriculture, and reducing rural poverty. Reducing rural transport costs can raise farm-gate prices, increase farmers' incomes and reduce urban food prices. It can also facilitate delivery of farm inputs, increase agricultural yields, and reduce post-harvest losses, which amounts to approximately 40% of total production in some countries due in part to inadequate rural transport options.

Bangkok Declaration progress reports indicate that many countries are implementing innovative rural transport improvements. The Rural Access Programme of Nepal promotes economic development by developing gender-equitable approaches to rural road project management, and Afghanistan's National Rural Access Programme aims to improve all-season accessibility in four provinces, expand maintenance practices, and build local capacity. India is implementing the Prime Minister's Rural Roads Program (PMGSY), which is to provide all-season farm-to-market connectivity in all villages with more than 500 people (about 180,000 villages) and develop capacity of Indian States.

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

Many countries lack adequate coordination among key sectors (e.g. transport, agriculture, health care), so the EST Forums can provide important rural transport planning guidance and support. The 2015 Forum emphasized the importance of raising the political priority of rural transport at national and global levels; prioritizing funding for rural passenger and freight transport, and accelerating efforts to increase rural transport resilience. The Forum confirmed that effective rural transport programs require an active involvement of communities. Participants endorsed the continued integration of rural transport in the EST Forum.

5. Key Lessons Learned

This section summarizes key lessons learned from a decade of EST Forums in Asia.

Most important, the Forums demonstrate the value of leadership. They show that, given suitable opportunities and coordination, diverse countries and organizations can create a common vision for a better future, and assemble the resources needed realize that vision.

The EST Forums also demonstrate that the transport planning paradigm is shifting: a growing portion of policy makers, practitioners and the general public understand the value of more comprehensive analysis and integrated solutions that address social equity and community livability objectives.

It is important to recognize the diversity of transportation issues. Transport policies affect virtually every aspect of our economies, communities and lives. As a result, transport planning should be comprehensive – it should consider diverse impacts, objectives and options and develop integrated solutions. Asia is extremely diverse. The continent contains the world's tallest mountains, some of the largest deserts, many of the largest and most affluent cities, and some of the least developed regions on earth. As a result, the problems communities face, and the solutions they choose, vary tremendously and must be tailored to each situation. One size does not fit all!

Asia's diversity is a challenge, but also an opportunity – it means that we can build broad coalitions to support sustainable transport if they respond to partners' diverse perspectives and needs. For example, some people are more concerned about affordability or safety than environmental protection, and so will support win-win solutions that help achieve all of those objectives. Fortunately, many do – our challenge is to effectively communicate their value to various audiences.

One of the most dramatic changes over the last decade is the growth and increasing sophistication of international, regional and national sustainable transportation research and advocacy organizations. These organizations produce high quality reports, fact sheets, websites, videos and software programs. Some of these are being translated into multiple languages and tailored to specific audiences. Such organizations are important EST Forum partners and make important contributions to positive change.

Some specific lessons are summarized below:

What went right?

- The EST Forums have helped improve our understanding of sustainable transport concepts. Policy makers, practitioners and the general public increasingly understand the importance of comprehensive analysis and integrated solutions.
- The EST Forums help governments establish clear goals and measurable targets, and through the country and city reports, track progress toward achieving those goals. This is an effective way to focus attention and stimulate progress on these issues.
- The EST Forums contribute to more multi-modal planning. Many jurisdictions, transport agencies and professional organizations are changing their policies, investments and planning practices to give more consideration to walking, cycling and high quality public transit services.
- Many cities have implemented, or are in the process of deploying, technologies that improve traffic and public transit operations, and facilitate payments for public transit fares, parking fees and road tolls. In many countries, most residents have access to mobile telephones and Internet access that can make travel more convenient and safer.
- Fuel subsidies are declining, and some cities are implementing parking pricing reforms.

What went wrong?

- There are still frequent conflicts between the transport policies of different jurisdictions and agencies, such as federal governments that subsidize vehicle fuel, while regional governments invest in public transit, while municipal governments require generous parking supply.
- Although most people agree on the importance of social equity objectives (such as ensuring basic mobility for physically and economically disadvantaged people, increasing affordability, and reducing traffic risks to vulnerable users), these are often treated as special issues rather than incorporated into day-to-day planning decisions.
- Some social women, girls
- There has been little progress with pricing reforms. More efficient road tolls and parking pricing often face severe political opposition. Road and parking pricing are sometimes implemented to generate revenue, but seldom as demand management strategies.
- Many countries provide little support for professional development by transport planners and engineers, so many practitioners continue to use outdated methods.
- Many cities have inefficient land development policies. They fail to effectively guide development, resulting in too few housing options or too much sprawl.
- Some new public bus systems, including some BRT systems, have failed to achieve their ridership and revenue targets, often because they are built without integrated planning and incentives to encourage ridership.
- New technologies are sometime difficult and costly to implement. As a result, many areas still lack services such as integrated public transit information and payment systems.
- Many cities lack effective traffic and parking regulation enforcement, and driver training.

- Many jurisdictions lack data needed for planning and evaluation.

Have Asian countries and cities been successful in addressing social equity objectives?

- In many Asian communities, physically and economically disadvantaged people endure very poor travel conditions due to a combination of inadequate facilities (sidewalks and paths), inadequate or expensive public transit services, and rapid increases in automobile traffic. In some cities, conditions are getting worse, rather than better, due to increased vehicle traffic speeds and volumes, and parking on walkways, which make walking on roadways infeasible.
- In many cities, a major portion of lower-priced housing is located at the urban fringe, leaving low-income households isolated. In a modern, industrialized economy, providing affordable housing within convenient walking distance of urban jobs and services is an important way to improve disadvantaged people's economic opportunities.
- There is evidence that women are frequently harassed while walking, cycling and using public transport. Although some agencies are trying to address these problems, progress is slow.

What are critical EST areas for Asian countries over the post-2015 development era?

- Many countries need to better coordinate the policies of various ministries, agencies and jurisdictions to allow more integrated transportation policies and planning practices. For example, transport, environment and health agencies should coordinate their efforts to encourage shifts from private automobile travel to more efficient, less polluting and healthier travel modes, and transport and housing ministries should integrate development policies to create more compact, multi-modal cities.
- Governments need to develop better funding options. Federal governments can establish optional taxes that municipal governments can use to support sustainable transport, such as high quality public transit, and walking and cycling facility improvements.
- Practitioners (analysts, planners and engineers) need better tools for evaluating the full costs of business-as-usual, and the full benefits of sustainable transport policies and projects. We need better models for predicting how specific transport system and land use development changes will affect travel activity (how and how much people travel), and tools for quantifying the resulting economic, social and environmental impacts.
- Sustainable transport advocates need better resources for responding to common criticisms and political attacks on sustainable transport policies and programs. For example, we need information and community advocacy that can counter motorists' opposition to bus- and bike-lanes, and efficient parking pricing.
- Governments, advocacy organizations, and universities can promote a culture of innovation that encourages public officials and practitioners to implement pilot projects to test new ideas, with a plan identifies how it can be scaled up if the concept proves to be successful.
- We need better data for planning, evaluation and research purposes. The EST Forum can help develop global or regional standards and best practices for planning data collection.
- To help public officials and practitioners understand the problems that people with disabilities face while traveling, they should spend a few days traveling their city in a wheelchair.

6. Key Challenges and Recommendations

This section discusses some important challenges for more sustainable transportation development.

6.1. Urban Livability and Social Equity

The combination of rapid urbanization and motor vehicle growth, plus limited planning resources has resulted in many Asian cities lacking quality-of-life features such as safe and attractive streets, public parks and playgrounds, shade trees and preservation of cultural amenities. To create more livable and equitable cities, Asian urban development policies can incorporate the following features:

- *Complete streets policies.* Design and manage streets to ensure safe and comfortable walking and cycling, with speed control, sidewalks, crosswalks, and bike lanes where appropriate.
- *Streetscaping.* Design streets with amenities such as shade trees, benches, and garbage cans.
- *Parks and recreation.* Develop parks and recreation facilities within a five-minute walk of most houses, and devote at least 20% of the urban area to public openspace.
- *Housing diversity.* Build diverse and affordable housing so all households can find housing options that meet their needs.
- *Culture and heritage.* Support community resources that preserve cultural identity and history.

6.2. Motorcycles and Scooters

One issue that is particularly important in Asian cities is the large number of motorized two-wheelers (motorcycles and scooters). This provides both benefits and costs. Two-wheelers are less expensive, require less space for travel and parking, and consume less fuel than automobiles, but still cause significant congestion, accident risk, noise and air pollution, and so should be discouraged, particularly in dense urban areas.

To minimize noise and air pollution some cities banned fossil fuel motorcycles and scooters, which created demand for electric scooters that are now widely used in those cities and elsewhere around the world (Cherry, et al. 2007). This significantly reduces pollution emissions, and because electric scooters tend to have lower maximum speeds, can reduce accident risk.

6.3. Regional Research and Knowledge Sharing

Other world regions have well-established organizations which coordinate major transport research programs and knowledge sharing:

- In 1953 16 European countries established the *European Conference of Ministers of Transport* (ECMT), which in 2006 established the OECD *International Transport Forum* (ITF). Although the OECD and ITF are global, their members, offices and events are primarily located in Europe.
- The *Transportation Research Board*, a division of the U.S. National Academy of Sciences, was established in 1920 as the National Advisory Board on Highway Research to sponsor research and exchange information about highway technologies. In 1974 it became the *Transportation Research Board*. It continues to support research and information sharing, and sponsors many events including an Annual Meeting which now attracts more than ten thousand participants.

These organizations, and the programs and events they support, provide a foundation for research, information exchange and professional development. Although some Asian countries have national transport research programs and support academic networks, there is no major international organization in the Asian region. The EST Forums have already started to fill that role; they give policy makers, experts and researchers an opportunity to develop a strategic vision and share emerging information. For example, the 2015 Forum introduced emerging information on why and how Asian countries can improve their transport system resilience. To better fill this gap the EST Forums could directly support research and information dissemination programs, or help sponsor a new organization with that mandate, comparable to the OEDC's sponsorship of the International Transport Forum

6.4. Data Quality

Planning, evaluation and research all require high quality data, such as those listed in Table 7. These data must be comprehensive, accurate, consistent, transparent, and available. Sustainable transportation planning requires new data in order to account for more impacts and modes than conventional planning.

Table 7 **Examples of Transport-Related Data**

Facilities and Services	Activities	Impacts	Land Use
Road and railroad supply and quality	Vehicle ownership (by type and user)	Transport facility and service expenditures	Density and mix
Parking supply and price	Vehicle travel (by type, purpose and location)	Household transport expenditures	Various measures of accessibility
Public transit service supply and quality	Freight transport	Traffic accidents and casualties by mode	Portion of land devoted to transport facilities
Walking and cycling facility supply and quality	Person travel (by mode, purpose and location)	Energy consumption	Land valuation (as impacted by transport facilities and services)
Port and airport size and condition	Mode share	Pollution emissions and exposure	Costs and market values
Transport system connectivity	Non-motorized travel	Traffic and aircraft noise	
Accessibility indicators	Travel speeds and delay (congestion)	Transport quality for disadvantaged groups	

This table lists various types of data needed for transport policy, planning and research.

Currently, the quality of Asian transport planning data is highly variable. Some jurisdictions have excellent data, but others lack basic data, such as motor vehicle ownership and type, roadway quality, and traffic casualties. Even where high quality data are available, they are often incompatible with those collected at other times and places, making it less useful for research and evaluation purposes. This may be an opportunity to improve transport planning data by establishing Asia-wide standards basic data collection practices, similar to current efforts to standardize European transport statistics (EuroStat 2014). This effort could be coordinated with international organizations.

7. The Way Forward

This analysis indicates that the EST Forums in Asia are overall effective and beneficial. As a result, the best way forward is to continue these events, and adjust them to better meet future needs.

The value of sustainable transportation policies is likely will increase significantly in the future, due to growing populations and economic activity, urbanization, and environmental concerns. Many sustainable transport concepts have been tested and proven their value, we have good knowledge about how and where they should be applied, so they are now ready for promotion and rapid application. This suggests that this is a good time for EST Forums to help scale up deployment of these innovations.

Although the EST Forums have proven effective at building leadership at the national level, and in some cities, these only directly involve a small portion of the decision-makers who affect transport policies and planning practices. For this reason, it may be time for EST Forums in Asia to support the development of many smaller-scale events with similar goals and methods, at the national, regional and local levels. These Forums can involve a similar set of policy makers and their advisors, practitioners, advocacy groups, and experts who can work together for more sustainable transport policies in their communities. Several examples exist, including the *Urban Mobility India* conference held annually in New Delhi, and regional conferences and workshops sponsored by planning and engineering professional organizations.

The International Transport Forum (ITF), the Transportation Research Board (TRB) and the Institute of Transportation Engineers (ITE) are examples of large international organizations that support research and knowledge dissemination. They focus on Europe and North America; Asia badly needs similar organizations. The EST Forums in Asia can either expand to fill those needs or help create a new organization, as the OECD created the ITF.

One possible reform is to change the name from *Environmentally Sustainable Transportation Forums* to *Economic, Equitable and Environmentally Sustainable Transportation (EEEST or 3EST) Forums*, in recognition that sustainability balances economic and social as well as environmental goals. This reflects our evolving understanding of the meaning of *sustainability*, and can help build partnerships with organizations that have other priorities besides environmental protection.

8. Conclusions

Wow, a lot can happen in a decade!

Asian countries are experiencing growth and development at an unprecedented scale. Billions of people whose grandparents and parents lived in traditional villages are moving to cities where, for better and worse, their grandchildren will live modern urban lifestyles. These changes affect every aspect of the economy, society and the environment.

Increasing motor vehicle travel and more sprawled development are causing severe problems in Asian cities including traffic congestion, accidents, pollution, rising inequity, and declining quality of life, plus climate change and associated threats such as sea level rise and extreme weather events. Rural communities face different but equally severe challenges due to inadequate basic transport infrastructure and connectivity. Existing institutions are unsuited to addressing such complex and interconnected problems, they require more integrated and innovative solutions.

Fortunately, a group of organizations and people have responded, in part, through EST Forums and related events that have occurred during the last decade. This review of EST Forum activities and accomplishments indicates that they are a catalyst for more sustainable transport. These events have helped change the way many people think about and solve transport problems, and helped forge alliances between diverse stakeholders. The hundreds of Forum participants influence many thousands of planning decision that affect billions of people (Figure 20). Many ideas and methods that were introduced at EST Forums are now being widely adopted throughout Asia.

The Forum has played a critical role in shaping of regional views and perceptions towards next generation transport solutions for the world's most populous and economically dynamic region.

- The Forum provides a strategic and knowledge platform for sharing experiences and disseminating among senior government officials concerning best practices, policy instruments, tools, and technologies for sustainable transport, underlined in the Aichi Statement (2005), Seoul Statement ~ Towards the Promotion of Environmentally Sustainable Transport (EST) for a Low-Carbon Society and Green Growth in Asia, the Bangkok 2020 Declaration (2010-2020), Private Sector Declaration on Green Freight in Asia towards a Green Economy, the Bali Declaration on Vision Three Zeros – Zero Congestion, Zero Pollution, and Zero Accidents (Bali Vision Three Zeros), and the Colombo Declaration for the Promotion of Next Generation Low Carbon Transport Solutions in Asia.

- The Regional EST Forum in Asia has played an instrumental role in bringing together Asian City Mayors and representatives to sign the Kyoto Declaration (2007, Kyoto/Japan) and Addendum to Kyoto Declaration - For the Promotion of Environmentally Sustainable Transport Towards Realizing Resilient, Smart and Liveable Cities in Asia (2014, Sri Lanka).

- The Regional EST Forum in Asia has influenced a number of countries to develop comprehensive national EST strategies with an objective to integrate EST in overall national policy, planning and development towards sustainable development (Cambodia, Indonesia, Lao PDR, Nepal, the Philippines, Viet Nam).

- The Regional EST Forum in Asia has also emerged as a potential ground for bilateral and multilateral donor agencies, development banks, and international organizations to identify areas for possible capacity building, technical cooperation and investments.

Figure 20 **EST Forum Leverage Effects**

EST Forums, and related regional events, attract hundreds of participants who influence thousands of policies, which result in more sustainable transport planning, more diverse and efficient transport systems, and improved economic, social and environmental outcomes for billions of people throughout Asia.

- As opposed to conventional thinking that mostly relies on policies and programs that induce more motorization at the expenses of other critical needs for achieving safe, resilient, inclusive and livable society, the Regional EST Forum has been able to generate growing interest in the regional to address a number of key, but often neglected, areas and contemporary thinking in transport sector, such as- regional connectivity (intra-region/rural-urban linkage) for sustainable development; building smart, safe and resilient communities through EST measures; dedicated NMT (promotion of national bicycle schemes) and road safety for social equity; greening the freight and logistics sector / intelligent freight system; improved accessibility to essential utilities and services; financing needs for next generation sustainable transport solutions; institutional arrangements in realizing next generation sustainable transport systems; expansion of e-Mobility and railways as next generation solutions; intelligent transport system (ITS) for efficiency, safety, green jobs, pollution reduction; smart growth, transit oriented developments (TODs), low carbon transport solutions and development path; and Implications of Bali Vision Three

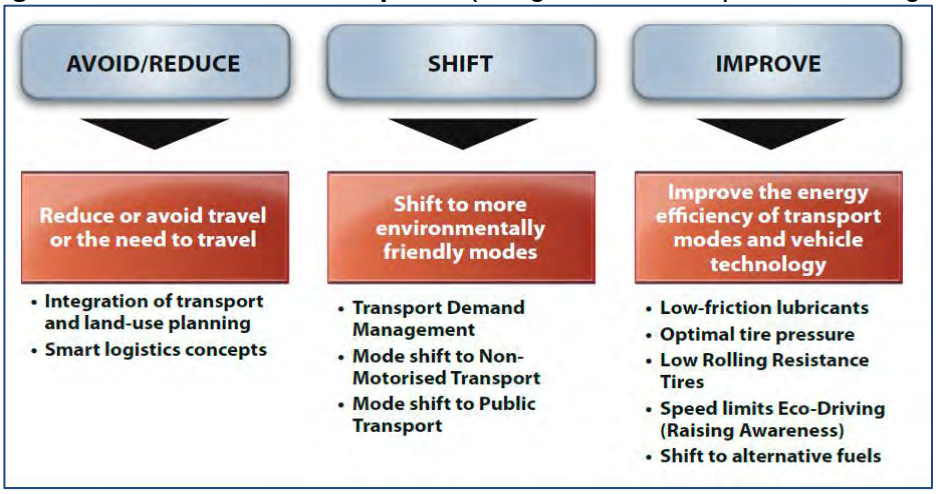
Zeros (zero congestion, zero pollution and zero accidents) on human development and national productivity.

The Asian EST process has further contributed in creating vital enabling conditions for the countries and cities for effective implementation of 2030 Agenda / SDGs such as-enhanced technical capacity at national and local level; sustainable transport strategies through interagency coordination process at national level (MoE, MoT, MoH, MoUD, etc); better policy and institutional insights to transport and sustainable development issues; better implementation framework for sustainable transport (e.g., Bangkok 2020 Declaration, Bali Vision Three Zeros ~ Zero Congestion, Zero Pollution, Zero Accidents); better understanding of the nexus between sustainable transport and SDGs; improved regional (Asia-wide) consensus on the role of regional connectivity and green-freight development for regional economic integration/development, among others.

Although it is difficult to measure the full extent of these impacts, they are probably very large, and their importance will increase in the future.

We gained a better understanding of sustainable transport during this decade. The EST Forums originally focused on reducing air pollution, but soon expanded to consider additional goals. It became evident that *everything is connected*, so successful solutions require comprehensive analysis of economic, social and environmental impacts in order to identify the *win-win* strategies which help achieve multiple policy goals. These are often organized in the *Avoid-Shift-Improve* framework, which helps prioritize solutions in order to maximize their benefits.

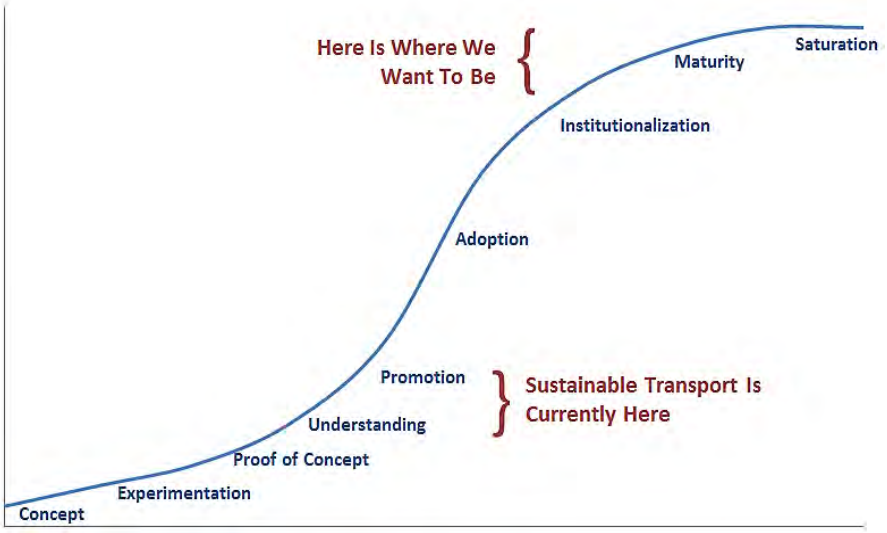
Figure 21 **Avoid-Shift-Improve** (Bongardt, Breithaupt and Creutzig 2011)



Avoid-Shift-Improve is a recipe for maximizing sustainable transport benefits.

Many of these strategies are relatively new, but have been tested and proven their value, and we have developed good understandings of where and how they should be implemented for maximum benefit (Figure 22). We are now entering the promotion and adoption stage during which these concepts will be widely implemented. It is time to scale up.

Figure 22 **Where We Are And Where We Want To Be**



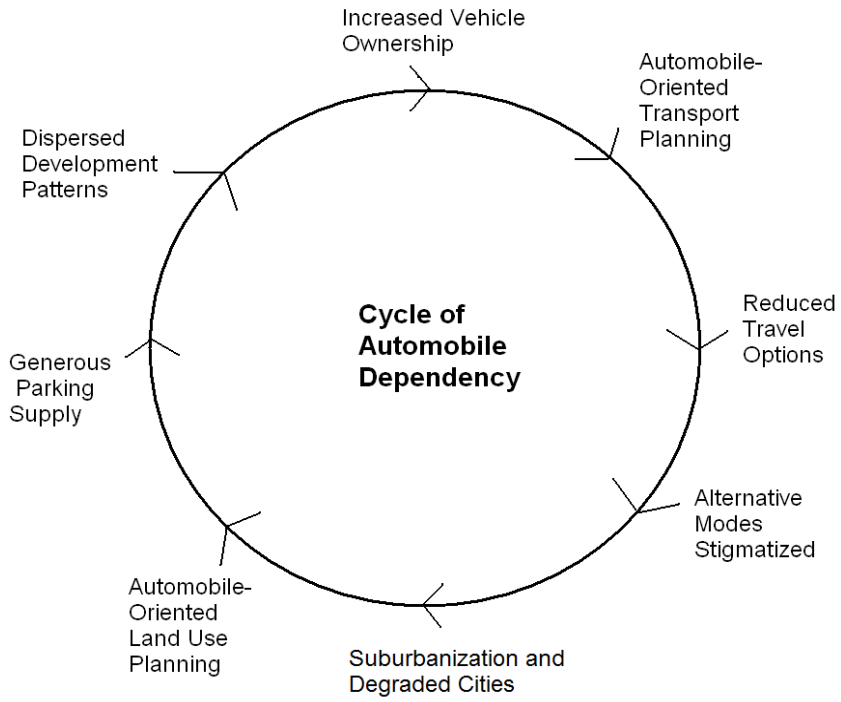
Sustainable transportation innovations are likely to follow a predictable growth pattern. Many strategies are currently in the "understanding" and "promotion" phases, and are starting into a "rapid adoption" phase. We should prepare to scale up to meet growing demands for smart solutions.

This requires leadership: people and organizations that will work to create a shared vision and create the resources needed to make that vision reality. Who will provide this leadership? We will! The public officials, practitioners, advocates and researchers who participate and support the EST Forums are key players in creating more sustainable transportation in Asia.

We face significant challenges. Many Asian countries continue policies and planning practices that reflect the old planning paradigm which favors automobile travel over more resource efficient modes, supports sprawl over more compact urban development, and fails to serve demands such as rural transport infrastructure needs. Examples include dedicated highway funding, roadways designed to maximize vehicle traffic speed, inadequate walking and cycling facilities, restrictions on urban infill densities, and minimum parking requirements in zoning codes that essentially subsidize automobile ownership and use. Such policies create a self-reinforcing cycle of automobile-dependency and sprawl (Figure 23). In addition, many countries lack programs to develop all-weather roads to serve rural communities.

Creating more sustainable transport systems will require changing the paradigm used to define transport problems and evaluate potential solutions, and more comprehensive and integrated planning. This means, for example, that we recognize the important roles that walking, cycling and public transit can play in an efficient and equitable transport system, and reform funding practices so these modes receive the support they deserve due to their many benefits.

Figure 23 **Cycle of Automobile Dependency and Sprawl**



This figure illustrates the self-reinforcing cycle of increased automobile dependency and sprawl.

Critical sustainable transportation strategies such as road tolls, parking fees and bus-lanes often face significant political opposition by people and groups who perceive their costs but ignore their numerous benefits. We must do a better job of communicating the many benefits that can result from a more diverse and efficient transportation system, including financial savings to households and governments, improved safety and health, improved livability, and increased economic productivity. Many sustainable transport policies also help achieve social equity objectives, for example, by ensuring that non-drivers receive a fair share of road space and transportation investments, and providing affordable basic mobility to physically, economically and socially disadvantaged people.

This study identified various obstacles that Asian countries face in implementing more sustainable transport policies, and identified specific actions that future EST Forums can take to help overcome these obstacles and facilitate positive change. As sustainable transport planning scales up, it will be important to educate and inspire a wider range of stakeholders, including the many public officials, planners, engineers, designers and law enforcement officials who make decisions that affect transport conditions and activities. There is a growing need for regional and local professional development programs, such workshops, webinars and training courses organized by professional organizations and universities.

Management experts often emphasize that what gets measured gets managed. Improving data collection is an important issue for policy makers and analysts. The EST Forums already collect

some data through country and city reports; it may be useful to expand this to include a standardized set of transportation-related data. The EST Forums can support targeted research and knowledge sharing in Asia similar to what the International Transport Forum and the Transportation Research Board offer in other regions.

One possible reform is to rename the *Environmentally Sustainable Transportation Forums* to *Economic, Equitable and Environmentally Sustainable Transportation (EEEST or E3ST) Forums*, in recognition that sustainability balances economic and social as well as environmental goals. This reflects our evolving understanding of the meaning of *sustainability*, and can help build partnerships with organizations that have priorities besides environmental protection.

The EST Forums in Asia demonstrate the value of leadership. Since the first EST Forum in 2005, these events have done much to create a shared vision and assemble the resources needed to create more efficient and equitable transport systems. But the work is certainly not done. Asian countries face severe challenges. Solving Asia's immense transportation problems will require many changes, including changes in the way we think about transport problems and evaluate solutions, changes in relationships between many organizations and groups, changes in the way governments plan and finance facilities and services, changes in transport prices and incentives, and ultimately, changes in the way we travel. Who will work to realize these changes? We will, the organizations and people of the EST Forums in Asia!

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Annex 1 - Bangkok Declaration for 2020

Sustainable Transport Goals for 2010-2020

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

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

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

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

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

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

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

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

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

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

I. Strategies to Avoid unnecessary travel and reduce trip distances

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

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

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

II. Strategies to Shift towards more sustainable modes

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

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

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

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

III. Strategies to Improve transport practices and technologies

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

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

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

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

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

IV. Cross-cutting strategies

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

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

Goal 15: Establish country-specific, progressive, health-based, cost-effective, and enforceable **air quality and noise** standards, also taking into account the WHO guidelines, and mandate monitoring and reporting in order to reduce the occurrence of days in which pollutant levels of particulate matter, nitrogen oxides, sulphur oxides, carbon monoxide, and ground-level ozone

exceed the national standards or zones where noise levels exceed the national standards, especially with regard to environments near high traffic concentrations

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

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

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

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

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

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

Annex 2 - Measuring Progress Toward the Bangkok Declaration Goals

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

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

Strategy	Indicator
"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

"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 drop curbs at interface between footpaths and intersections
	Note the existence of national and local policies mandating minimum footpath widths, and note the minimum width
	Note the existence of national and local policies mandating dedicated pedestrian signals at major intersections
	Promote the monitoring and measurement of the quality of pedestrian facilities and the number of cities surveyed or audited for a "walkability" score
	Number of cities with dedicated cycleways
	Number of kilometres of cycleways
	Number of secure bicycle parking spaces
	Number of cities with shared bicycle programmes and number of shared bikes per programme
	Number of cities with pedicabs (cycle rickshaw) improvement programmes
	Number of public transport systems with formal integration of pedicabs (cycle rickshaws)
	Number of cities participating in a Car-Free Day programme
Public Transport	Number of cities with trunk bus corridors operating on dedicated busway lanes in the median of the roadway (Bus Rapid Transit)
	Number of kilometres of dedicated, median busways (Bus Rapid Transit)
	Number of cities with bus systems using pre-board fare verification and stations designed for at-level fast boarding
	Number of cities utilizing electronic fare cards on their public transport system
	Number of cities with a fully integrated fare structure across public transport modes
	Number of cities with elevated or underground metro systems (MRT)
	Number of kilometres of MRT
	Number of cities or areas utilising congestion charging

Transportation Demand Management	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
"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
"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 non-motorized transport and number of cities with local government units dedicated to non-motorized transport to promote walking
	Structure and relationship of national, regional, and local actors involved in EST, including engagement with civic and business sectors
	Note environmental impact assessments (EIAs) for evaluating the impact of transport infrastructure initiatives prior to environmental clearance

Annex 3 - Bangkok Declaration Progress Review

This annex reviews and summarizes 74 Bangkok Declaration progress reports presented at the Sixth (2011) through the Ninth (2015) EST Forums in Asia. Each of twenty goals has a table that shows which countries indicated progress toward that goal. Because this summary is based on often limited information in the progress reports, the results may be incomplete; many countries are doing far more to achieve Bangkok Declaration goals than these tables indicate.

I. Strategies to Avoid unnecessary travel and reduce trip distances

1. Formally integrate land-use and transport planning

Country	Sixth, 2011, Delhi	Seventh, 2013, Bali	Eighth, 2014, Colombo
Afghanistan	New transportation plan for major cities		Not yet. Finalizing Strategic Urban Air Quality Management Framework, which makes "Moving towards establishing sustainable transport system" a key goal, and adopts the Bangkok 2020 declaration.
Bangladesh	Transport Planning adopted through different activities	Integrate land-use and transport planning in three major cities namely, Dhaka, Chittagong and Khulna	Largely in Place. Strategic transport plans for various cities.
Bhutan	Mentions this goal	Most urban centers have land-use planning in place	Most urban centers now have integrated land use and transport planning process
Brunei Darussalam		Centre For Strategy and Policy Studies preparing a Land Transport Master Plan which will shape the country's future land transport policy	Brunei's Land Transport Master Plan (LTMP) launched on 2014.
Cambodia			
India	Extensive policy reforms.	Jawaharlal Nehru National Urban Renewal Mission (JnNURM) extended from April 2012 to March 2014.	Smart City Mission- urban renewal and retrofitting program (Total budget: US$15 billion)
Indonesia	Development of Transit system /TOD	Integrated plan (land use & transport), e.g., Jakarta	Integrated plan (land use & transport), e.g., Jakarta
Japan	Sustainable transport development as part of earthquake reconstruction	Policies and programs in place	Policies and programs in place. E.g., law on promotion to low-carbonization in urban areas
Lao PDR	Environmentally and People Friendly Urban Transport Infrastructure Development Infrastructure Development	Implementing land use planning	
Malaysia		Largely in Place	Largely in Place

Maldives	Provision of easy access to essential services closer to home for all citizens.	Integrated planning		
Mongolia	Mentions this goal	Some progress "Urban Redevelopment Law"	Some progress. New Master Plan of Ulaanbaatar city	
Myanmar		Some progress. With JICA assistance, the Ministry of Transport is conducting a feasible study for a National Transport Master Plan	Some progress	
Nepal			Kathmandu Valley 2014 Transport Master Plan aims to coordinate land use and transportation	
Pakistan		Largely in place. Strategic Environmental Assessment (SEA) for Spatial/Land Use Planning	Some progress	
People Rep. of China		Some progress. Example is the Comprehensive transport development plan for the 12FYP		
Philippines	Urban transport program for highly urbanized cities			
Rep. of Korea	Public transport focused urban development	Some progress. Strengthening of connectivity between Metropolitan transportation plan and Urban Master		
Russian Federation				
Singapore	Mentions this goal		Fully Completed	
Sri Lanka		Integrated land use planning in new cities		
Thailand	Mentions this goal	Not yet	Not yet	
Timor Leste	Strategic Development Plan (2011-2030)			
Viet Nam	Mentions this goal.	Largely in Place. Green city transport project approved and expected to completed by 2020.	Largely in Place. Law on Land approved by the National Assembly in 2013	
Counts	*15*	*18*	*14*	

2. Achieve mixed-use development and medium-to-high densities along key corridors

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	
Afghanistan			Not yet	
Bangladesh	Achieve mixed-use development and medium to high densities along key corridors within cities	RAJUK is approving plan of multistoried buildings with mixed purposes	Some progress RAJUK is approving plan of multistoried buildings	
Bhutan		Some in place		
Brunei Darussalam		Some development master plans.		
Cambodia				

India	Extensive policies	Urban Planning, TOD planning	
Indonesia	Development of Transit system /TOD	Development of Transit system /TOD	Development of Transit system /TOD
Japan	Sustainable development as part of earthquake reconstruction	Policies and programs in place	
Lao PDR			
Malaysia		Largely in Place	Mixed-use development
Maldives			
Mongolia		Some progress. Promotes public transport-based urban development	Some progress
Myanmar		Some progress	Some progress
Nepal			Kathmandu Valley 2014 Transport Master Plan aims to coordinate land use and transportation
Pakistan		Largely in Place. Zoning to allow more compact and mixed urban development	Some progress
People Rep. of China		Some progress	
Philippines	Urban transport program for highly urbanized cities		
Rep. of Korea	Public transport forced urban development	Some progress. Introduce a corridor-type TOD(or TOC) considering urban-transportation integration plan as introducing light rail/tram	
Russian Federation			
Singapore	Mentions this goal		Fully Completed
Sri Lanka	Mentions this goal		
Thailand		Not yet	Rail station area NMT improvements
Timor Leste			
Viet Nam		Some progress	Some progress. Ha Noi and Ho Chi Minh city Metro Rail projects
Counts	*8*	*14*	*10*

3. Institute policies, programmes, and projects supporting Information and Communications Technologies (ICT) to reduce travel.

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan		Mentions this goal	Not yet	Largely in Place
Bangladesh		Electronic Ticketing System and other innovations	Some progress. Various electronic services	Largely in Place. Approval of National Information and

				Communication Technology (ICT) Policy-2015.
Bhutan		Most of the remote villages are now connected by mobile telephone.	Nationwide fiber-optic network and high mobile telephone and Internet penetration	This concept has been conceived but faces challenges. G2C Services use small scale telemedicine, health consultation through social media apps.
Brunei Darussalam			Introduction of National Broadband Policy (2014-2017)	
Cambodia				
India	Some programs	ITS for Traffic Management		
Indonesia		Optimization of traffic management (ATCS) and electronic payments systems	Optimization of traffic management (ATCS) and electronic payments systems	
Japan	Some programs	Fully completed		Largely in Place.
Lao PDR				
Malaysia		Largely in Place	Largely in Place	Largely in Place. Journey Planner and integrated ticketing system
Maldives				
Mongolia	GPS systems		Some progress	
Myanmar		Some progress. - Efforts to allow most residents access to mobile phones and Internet.	Some progress	Some progress. Intelligent Management System run by Myanma Railways
Nepal				
Pakistan		Not Yet	Largely in Place. High cell phone ownership rate.	
People Rep. of China		Some progress		
Philippines				Some design. Public Transport Information Management Center
Rep. of Korea		Fully Completed. Establish and operate Intelligent Transportation System(ITS) at national, metropolitan city and regional level		Largely in place. High Internet penetration rates

Russian Federation				
Singapore	Mentions this goal			
Sri Lanka		Focus is on the use of ICT to avoid travel whenever possible.		ICT development. Mobile based transactions (banking, other services). Free Wi-Fi zones in public spaces.
Thailand		Largely in Place	Largely in Place	
Timor Leste				Not yet
Viet Nam	Mentions this goal	Some progress. VOV Transport (broadcast)	Some progress	Some progress
Counts	*5*	*14*	*11*	*11*

II. Strategies to Shift towards more sustainable modes

4. Require Non-Motorized Transport (NMT) components in transport master plans

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Not yet	Some progress
Bangladesh	Includes Non-Motorized Transport components in transport master plan	Design standards with provision of NMT is in place	Some progress. Various NMT policies, plans and projects.	Some progress. Design standards with provision of NMT is in place.
Bhutan		Largely in place. "Pedestrian Day" observed every month		Non Motorised Transport slowly picking up
Brunei Darussalam		Providing footpath and bike lanes		
Cambodia	People and environmentally friendly transport infrastructure			
India	Pedestrian Guidelines	Developing a National Cycling Policy, street design practices, and other NMT programs	Plans to improve NMT infrastructure	Many Indian cities introducing dedicated NMT lanes and bike sharing systems.
Indonesia	Improvement pedestrian and cycling facilities. Jakarta started city's first dedicated bicycle lane (1.5 Km).	Improve and encourage use of non-motorized transport	Development of pedestrian and cycling facilities	Development of pedestrian and bicycle facilities in cities.
Japan		Fully completed	Fully completed	Largely in Place.

Lao PDR	Improving urban walking conditions	Non- Motorized Transport (NMT) in EST Strategy		
Malaysia		Some progress	Some progress	Largely in place. Putrajaya Green City 2025
Maldives		Since islands are small, 90% of transport is walking		Various pedestrian and cycling improvements, including pedestrian zones and bikeways
Mongolia		Some progress	Some progress. Ulaanbaatar bikes project	
Myanmar		Some progress	Some progress	Some progress. Construction of separate roads and bridges for pedestrians and cyclists in Yangon City, Mandalay City and Nay Pyi Taw City
Nepal	Historical Areas Pedestrianisation			Improving walkability. Provision of cycle lanes along major intra-urban roads
Pakistan	Adequate pedestrian facilities	Largely in Place	Some progress. All planned housing schemes have foot path network	
People Rep. of China		Largely in Place		
Philippines		Bikeways and Walkways Program	Bikeways and walkways, greenways, LRT bike accommodation	Some greenways completed. Promoting walkability and nonmotorized transportation and interconnectivity with MRT in Metro Manila
Rep. of Korea	Extensive programs to improve and encourage NMT	Largely in Place. Promotion of human-centered cities	Promote nation-wide bicycle networks and linear parks.	Many programs to promote walking and cycling
Russian Federation				
Singapore	Mentions this goal		Largely in Place	
Sri Lanka	Mentions this goal	Walkways and dedicated Cycle Lanes in main cities		Improving walkability by providing foot walks, planting trees along walk ways

				shade pedestrians, and bicycle lanes.
Thailand	Thailand planned for longest bike lane in Asia, 184-km crossing 5 provinces to be completed by 2017.	Some progress	Non-Motorized Transport Master plan	Promotion of "Bicycle use in daily life"
Timor Leste		3 ZEROs Vision		Not yet. Low current automobile ownership.
Viet Nam		Some progress. Pedestrianized streets	Some progress. Pilot project to promote public bicycle in 5 major cities	Some progress. Project to promote public bicycle in major cities.
Counts	*10*	*19*	*15*	*14*

5. Improve public transport services

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Some progress. Kabul Urban Transport Efficiency Improvement Project	Some progress
Bangladesh	Public transport service implementation through BRT	Bus Rapid Transit (BRT) Projects under development	Some progress. Various BRT and rail projects. Dhaka Metro started, scheduled for completion by 2019.	Some progress. Numerous mass transit projects planned and underway.
Bhutan	Focus on eco-friendly mode of mass transport system	All the twenty districts and some blocks are connected by public transport. Number and frequency of city transport is increasing steadily	Plan for BRT drawn but remains unimplemented due to high cost of related infrastructure and buses	Additional buses for urban transport committed. Feasibility study for light rail transit system. Pre-feasibility study of the mass-rapid transit started in 2016.
Brunei Darussalam		Develop new central Bus station and terminals. Improve connectivity of Public Bus routes New type of bus, more feeder services.		
Cambodia	Public transport		Re-introduction of public bus services along Monivong blvd	

India	Some investments and support programs	Many programs to improve urban transit services	Strengthening Metro and BRTS networks	
Indonesia	Development of mass public transport	Develop mass public transport infrastructure and various support strategies. US$1.7 billion Jakarta MRT started in 2013 and scheduled for operation by 2017.	Government further plan for urban railways development in 9 cities, and BRT development in 29 cities by 2019.	Operation of Jakarta's Transjakarta Busway. Train facility improvements. Plans to develop mass rapid transit in Surabaya, Surabaya City, Surakarta and Batam
Japan	Extensive programs and investments	Fully completed. A world leader.	Fully completed	Largely in Place.
Lao PDR	Urban Transport Master Plan with major public transit improvements	Many public transit improvement programs	Vientiane Sustainable Urban Transport Project (2014-2020)	E-Tuktuk Public Transport in Luangprabang pilot project
Malaysia	Raise the transit modal share to 13% in 2010 and to 25% by 2012	Largely in Place	Largely in Place	Largely in Place. Bus Rapid Transit, urban rail development plan and bus stop programme
Maldives	Establish an integrated public passenger transport service	Marine public transit improvements		Integrated Public Transport Network. Will help to start a bus network which connects the ferry terminals.
Mongolia	Major investments in public transit	Some progress Establishing competitive public transportation system	Some progress. Embarkation of BRT project	
Myanmar	emphasizing to improve public transport infrastructure such as quality of bus service bus transport infrastructure such as quality of bus service, bus transport network	Some progress	Some progress	Some progress. Various tram and rail improvements, and support for bus services, including BRT.
Nepal	Planning for improved and less polluting transit, including bus lanes and rail transit		Integrated transit fare system	Various public transit improvements and incentives.
Pakistan	Mentions this goal	Largely in Place	Some progress. BRT in Lahore (In operation) and	Some progress. Japan International Cooperation Agency and World Bank

			Metro Islamabad (under construction)	performed studies for implementation of mass transit facilities.
People Rep. of China		Promotion of BRT in China.	Urumqi Urban Transport Project II, Yichang bus rapid transit, Beijing's first exclusive Bus Rapid Transit (BRT).	
Philippines	Public transport network integration and improving mass transit systems and improving mass transit systems	Promote BRT and rail systems	Mega Manila Public Transport Plan. Urban rail in various cities.	Design and implementation. Cebu BRT, MRT Line-3 Capacity Expansion, LRT Line-1 South Extension, etc.
Rep. of Korea	Extensive programs to improve and encourage public transport	Largely in Place. Expanding dedicated districts for public transportation.		Largely in place. May programs to improve and encourage public transit.
Russian Federation			Some progress. Improving urban transit systems.	
Singapore	Mentions this goal		Largely in Place	
Sri Lanka	Mentions this goal	Better quality Bus and Train Services		Many public transit improvements.
Thailand	Major investments	Largely in Place	Largely in Place. Several projects underway.	Public transport improvements
Timor Leste		3 ZEROs Vision		Promotes private sector investment in urban transportation.
Viet Nam	Development of public passenger transport	Some progress. MRT, BRT in Ha Noi, Ho Chi Minh city	Some progress	Some progress. MRT, BRT in Ha Noi and Ho Chi Minh city
Counts	*19*	*19*	*19*	*17*

6. Reduce the urban transport mode share of private motorized vehicles through Transportation Demand Management (TDM)

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan	One working day in a week has been off to avoid commuting		Not yet. This is part of the strengthening of proposed Air Quality Strategy	Some progress
Bangladesh		Tolls introduced for selected roads and bridges,	Some progress. Road pricing, commuter services and flextime.	Some progress. Various strategies including parking fees.

		government flextime		
Bhutan	Mentions this goal	Parking fees introduced to reduce congestion. Comprehensive fiscal measures proposed (higher tax, road toll, CoE etc)	"No vehicles day" in urban centers. Parking fees in some cities.	"No vehicles day" in urban centers. Parking fees in some cities.
Brunei Darussalam		Traffic Congestion Programme with bus priority		
Cambodia	Public transport and TDM			
India	Some programs, including parking management	Some TDM programs, including parking policy reforms and road pricing		Chennai is developing an IT-based parking management system.
Indonesia	Traffic management, carfree day, public transport day	Road pricing, parking pricing, and car travel disincentives	Road pricing, parking pricing, and car travel disincentives	Jabodetabek Transportation Management Agency (BPTJ).
Japan		Largely in Place	Fully completed. Financial support provided for approved TDM project plans	Largely in Place.
Lao PDR	Travel demand management, including parking management	Transportation Demand Management (TDM) in EST Strategy		
Malaysia	Mentions this goal	Some progress	Some progress	Largely in place. Greater Klang Valley Public Transport Masterplan
Maldives		No Vehicle Days		No vehicle days, and controlled usage of vehicles in some islands to encourage walking and cycling.
Mongolia	Encourage public transit in urban areas	Some progress Restrict private cars by their plate numbers, and encourage efficient modes	Some progress. Private cars restricted by license plate numbers digit in downtown. Government workers required to use public transport.	
Myanmar		Some progress. Yangon city has motorcycle-free	Some progress	Some progress.

		zones. The system of imposing fine for causing road congestion has started		
Nepal	Strengthening Transport Management Strengthening Transport Management Activities			
Pakistan		Largely in Place	Some progress. Staggering of working hours particularly for schools.	
People Rep. of China		Some progress. Beijing (car plate lottery – cap-and-lottery); Shanghai (parking pricing, and vehicle plate auction system, - cap-and-trade)	Beijing TDM plan	Beijing TDM plan
Philippines		Toll roads	Carless day and car-pooling.	Some progress. Plans for parking levy.
Rep. of Korea	Traffic demand management policies	Largely in Place. Revision of Urban Traffic Improvement promotion Act including traffic charges.		Largely in Place. Many programs. Motto: "Make Drivers Uncomfortable, Passengers Comfortable"
Russian Federation			Some Progress. Parking pricing.	
Singapore			Largely in Place	
Sri Lanka	Transport planning & transportation demand management			
Thailand		Not yet		
Timor Leste				Not yet. Low current motor vehicle ownership rates.
Viet Nam		Some progress. Congestion pricing in rush hour for vehicle that enter Ha Noi, Ho Chi Minh city	Some progress. Ministry of Transport considering pricing measures	Some progress. Ministry of Transport considering pricing measures
Counts	*11*	*17*	*13*	*13*

7. Achieve significant shifts to more sustainable modes of inter-city passenger and goods transport

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Largely in place	Some progress
Bangladesh		Enhanced Intercity train and bus services	Some progress. Various intercity transport service improvements underway	Some progress. Freight movement using rail and inland waterway over road has been enhanced.
Bhutan	Mentions this goal	Inter-city passenger and goods transport available but not very energy-efficient. Public transport service increasing.	More comfortable and less polluting buses for inter-city travel	
Brunei Darussalam				
Cambodia				The rail link between Thailand and Cambodia expected to complete by the end of 2016.
India			Construction of more dedicated rail freight corridors	Introduction of rural road development programme (Pradhan Mantri Gram Sadak Yojana –PMGSY)
Indonesia		Implementation of modern logistic system package	Freight improvement program	
Japan		Largely in Place	Largely in Place	Largely in Place. Promotion of Low Carbonization of Freight Using Railways
Lao PDR		Transport logistics in EST Strategy		
Malaysia		Largely in Place	Largely in Place	Largely in place. ETS – Gemas - Padang, Buloh – Kajang lines
Maldives				
Mongolia		Some progress	Some progress	
Myanmar		Some progress	Some progress	Largely in Place. Studies of railroad lines and services.
Nepal				
Pakistan		Largely in Place	Some progress. Revival of railway	Programs to improve freight

				transport service and truck fuel efficiency.
People Rep. of China		Some progress		Will invest $438 billion in railway construction during 13th Five-Year Plan (2016-2020)
Philippines		Highway, rail and marine transport improvement plans	Integrated Luzon Railway Project	Some progress. New rail line and port facilities.
Rep. of Korea	Green logistics	Largely in Place. Grants and incentives to support freight shift from road to railway or coastal shipping		
Russian Federation			Some progress. Improving freight railway.	Moscow–Kazan and Moscow–Rostov High-Speed Rail Projects to be completed by 2018
Singapore			Some progress. Singapore has world-class international freight logistics	
Sri Lanka		Promotion of train cargo transport		
Thailand	Major rail investments	Some progress.	Freight road-to-rail strategies	
Timor Leste				Improving intercity highways.
Viet Nam	Railway Development Strategy for 2020 approved.	Some progress. Develop some port, railway infrastructure projects	Some progress.	Some progress Action plan to raise the capacity and efficiency of different transport modes
Counts	*4*	*15*	*16*	*12*

III. Strategies to Improve transport practices and technologies

8. Diversify towards more sustainable transport fuels and technologies

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan		Promote CNG and hybrid vehicles	Some progress	Some progress
Bangladesh	Global Fuel Economy Initiative (GFEI)	Encouraging CNG and reducing diesel sulfur levels	Some progress. CNG encouragement	Some progress. Strategies encourage

				biofuels, CNG and electric vehicles.
Bhutan	Mentions this goal	Some potential for bio-fuel, Encouraging electric/hybrid vehicles (tax exemption on electric/hybrid vehicles)	Bhutan electric vehicle (EVs) initiative for the promotion of low-carbon transport	Aspiring to achieve Zero Emission by promoting electric vehicles. Replace ICE Taxis with EV Taxis. Electric charging station network.
Brunei Darussalam		Encourage of the purchase of Hybrid Vehicle through lower import tax		
Cambodia	Mentions this goal			
India	Fuel quality improvement programs	Programs to encourage CNG	Upgrading fuel quality, encouraging CNG and biofuels	
Indonesia	Promote alternative fuels	Converter kit installed in taxis and public transportation that uses gasoline to reduce CO2 emissions	Promote use of green technologies and alternative fuels	Encouraging natural gas for taxis and public vehicles in Jakarta and Surabaya.
Japan		Largely in Place	Largely in Place	Largely in Place. Many programs
Lao PDR	Some electric vehicles	Clean fuels in EST Strategy		Investigating EV motorization
Malaysia	Hybrid and electric vehicle grants.	Some progress.	Some progress. Promotion of electric vehicles.	Some progress. Electric Vehicle Infrastructure Roadmap. Biofuels.
Maldives	By 2015 not less than 10% of transport fuel should consist of biofuels	Promote bio fuel. Projects to research and develop boats which use sustainable fuel		
Mongolia	Encourage biofuels and electric vehicles	Some progress Increase hydrogen and hybrid fuel use	Some progress	
Myanmar		Some progress	Some progress	Some progress. Using CNG and LPG cars, and electric-cycle
Nepal	Cleaner fuels and replace older vehicles		Promotes electrical or renewable energy based vehicles; 20 % stock by 2020; waives custom duty for EVs	Promote electrical or renewable energy
Pakistan	Mentions this goal	Not yet	Some progress. Use of CNG (highest in the world). Hybrid vehicles are	Technological tools, such radio frequency identification tags (RFID), global

			penetrating into the market.	positioning systems (GPS) and vehicle routing software
People Rep. of China		Some progress. Promote new energy vehicles (e-vehicles, hybrid, fuel-cell)		
Russian Federation				
Philippines		Bio- and LPG development programs	Promotes LPG, LNG, electric and hybrid vehicles	Some progress. Jeepneys upgraded to Euro IV standards
Rep. of Korea		Some progress. Establish electric car charge stations		Some progress.
Singapore	Mentions this goal		Largely in Place	
Sri Lanka	Cleaner fuels	Promotion of alternate fuel types		Promotion of fuel switching. Phase out leaded fuel and two-stroke engines.
Thailand		Largely in Place. Biofuels	Largely implemented.	Promotes alternative fuels
Timor Leste				Not yet.
Viet Nam	Produce and encourage cleaner fuels	Some progress. Develop CNG, LPG bu	Some progress. Plans to implement biofuels	Some progress. Encouraging biofuels and CNG
Counts	*14*	*19*	*15*	*16*

9. Set progressive, appropriate, and affordable standards for fuel quality, fuel efficiency, and emissions

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan		Introduced EURO III equivalent fuel quality standards	Some progress. Fuel quality standards as per EURO III already made mandatory	Some progress
Bangladesh		Introducing vehicle emission standards	Largely in Place. Some old vehicles banned, and standards applied to new vehicles.	Some progress. Standard for vehicular exhaust gases according to 1997 Bangladesh Environmental Conservation Rules
Bhutan		Vehicle Emission Standard in Place. Banned import of Second hand vehicles. In-use vehicles are subjected to	In 2014, "Auto Fuel Vision & Policy 2025" Expert Committee presented recommended standards and other	Vehicle Emission Standards being reviewed

		periodical emission testing.	emission control strategies	
Brunei Darussalam				
Cambodia	Mentions this goal			
India	Programs to improve fuel quality	Fuel standards		
Indonesia		Implementation of the application of CO2 emission standards	Implementing emission standards. Eco-driving campaigns	Euro 4 fuel preparation (especially Sulfur Content of 50 ppm) – Campaign "Use of Low Sulfur Fuel"
Japan	Established emission reduction regulations, including off-road vehicles and electric vehicle support	Largely in Place	Largely in Place	Largely in Place. Review of the Automobile Fuel Efficiency Targets
Lao PDR	Vehicle emission control	Vehicle emission control in EST Strategy		
Malaysia	New vehicle standards	Some progress	Some progress	Some progress
Maldives				
Mongolia		Some progress Emission standards	Some progress	
Myanmar	Cleaner Fuel Initiatives	Some progress	Some progress	Some. Inspect the emissions of automobiles
Nepal	Regular vehicle testing			
Pakistan		Some (designing-piloting)	Largely in Place	Fuel economy standards
People Rep. of China		Some progress		
Philippines	Promote LNG and electric vehicles	Adoption of Euro regulations	Euro2/II standards, including motorcycles and tricycles	Design of Euro 4 emission standards.
Rep. of Korea		Largely in Place		Largely in Place
Russian Federation				
Singapore	Mentions this goal		Largely in Place	
Sri Lanka	Cleaner fuels			
Thailand		Fully Completed. Implementing EURO IV standards	Largely in Place.	Largely in Place. Vehicle/fuel standards.
Timor Leste		3 ZEROs Vision		Not yet.

Viet Nam	Encourage cleaner fuels	Some progress	Some progress	Some progress. National regulations on automobile and motorcycle emissions.
Counts	*11*	*17*	*13*	*13*

10. Establish effective vehicle testing and compliance regimes

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Not yet	Some progress
Bangladesh		Routine and periodic inspection of vehicles in place	Some progress. Routine and periodic inspection of vehicles is in place.	Largely in Place. Routine and periodic inspection of vehicles is in place.
Bhutan		Largely in place. Testing is mandatory and is conducted once annually for noncommercial vehicles and every six months for commercial vehicles	Fuel quality is monitored regularly. Emission testing is mandatory for all vehicles	Fuel quality is being monitored regularly. Eight air quality monitoring stations established.
Brunei Darussalam		Periodic Vehicle Inspection		
Cambodia				
India	Roadside air quality monitoring		Developing stringent inspection and maintenance program	
Indonesia		Implementation of Motor Vehicle Inspection (CLA) for city / district.		Proposal for emissions testing prior to vehicle registration renewal
Japan		Largely in Place	Largely in Place	Largely in Place. Planning to introduce the Worldwide Motorcycle Testing Cycle and Worldwide Heavy-Duty emission Certification
Lao PDR	Ambient Air Quality and Noise Monitoring and Management	Inspection & maintenance (I/M) in EST Strategy		
Malaysia		Fully Completed	Fully Completed	Largely in place. Mandatory inspection for commercial and

				used car. Other programs.
Maldives		Regulations for vehicular emissions and roadworthyness		
Mongolia	Prohibit older vehicles	Some progress. Vehicle diagnostic inspection centers enforce emissions and road safety requirements	Some progress	
Myanmar	Emission control programs	Some progress	Some progress	Largely in place. Vehicles are inspected in accordance with Motor Vehicle Law
Nepal	Improving air quality monitoring		Vehicle fitness centre constructed, to be operated by Department of Transport	Vehicle fitness centres
Pakistan	Mentions this goal	Largely in Place	Some progress	
People Rep. of China		Some progress		
Philippines	Development of motor vehicle inspection and maintenance program	Motor vehicle inspection system program	Motor vehicle inspection system program	Fully completed Emission testing centers.
Rep. of Korea		Largely in Place		Largely in Place
Russian Federation				
Singapore	Mentions this goal		Largely in Place	
Sri Lanka	Vehicle emission control, standards & inspection and maintenance (I/M)	Mandating vehicle emission testing		Total active fleet undergoing annual emission tests since 2008
Thailand		Some progress		
Timor Leste				Not yet.
Viet Nam	Mentions this goal	Largely in Place. Building some inspection stations	Some progress. Developing legal documents to apply emission standard for motorbike	Some progress. Developing motorbike emission standard enforcement in urban areas.
Counts	*10*	*17*	*13*	*13*

11. Adopt Intelligent Transportation Systems (ITS)

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Not yet	Not yet
Bangladesh		Electronic ticketing system on some bus routes	Largely in Place. Various electronic information and payment services.	Some progress. Electronic fare system (Electronic Ticketing System)

				on the selected bus and rail routes
Bhutan		Initiated speed detectors in Thimphu		ITS being piloted in the capital city (Installation of CCTVs, integrated bus sheds)
Brunei Darussalam			Introduction of National Broadband Policy (2014-2017).	
Cambodia				Introduced the National ICT Policy
India	Introducing ITS programs	Various ITS programs, including electronic pricing		
Indonesia	Traffic optimization and Electronic Toll Collection	ITS development	ITS program	Adopt Intelligent Transportation Systems (ITS) including ERP (Electronic Road Pricing) in Jakarta.
Japan		Largely in Place	Largely in Place	Largely in Place. utilizing information gathered through ITS spots to avoid traffic jams and safety support services
Lao PDR		Preliminary Survey on Intelligent Transport System		
Malaysia		Some progress	Some progress	Some progress
Maldives	Mobile phone based information/ reservation system	Electronic information system, to reduce unwanted travel and make trips more useful		
Mongolia		Some progress	Some progress	
Myanmar	Some CCTVs	Not yet	Not yet	Some progress. Eager to use ICT including electronic payment, CCTV, etc
Nepal			Implementing embossed number plate with digital information, and smart card for driving license	Smart card driving license like will be implemented
Pakistan		Largely in Place. ITS-Based traffic management model for Karachi and national highways	Some progress. Lahore metro electronic fare collection, and has real time user information.	Technologies such radio frequency identification tags (RFID), global positioning systems

				(GPS) and vehicle routing software
People Rep. of China		Some progress		
Philippines		Automated Fare Collection System	Automated Fare Collection System	Fully completed. Inter-operable among three Metro Rail Transit lines and buses. Public Transport Information Management Center
Rep. of Korea	New technologies	Largely in Place		Largely in Place
Russian Federation				
Singapore	Mentions this goal		Fully Completed	
Sri Lanka		Focus is on the use of ICT to the maximum to avoid travel whenever possible		ICT development and integration with transport system
Thailand		Some progress. Policy for common ticketing project	Largely implemented	
Timor Leste				Not yet.
Viet Nam	Mentions this goal	Some progress. Develop smart card in bus in Ha Noi	Some progress. Apply ITS in some new highways	Some progress. Apply ITS in some new highways
Counts	*7*	*16*	*14*	*14*

12. Achieve improved freight transport efficiency

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Not yet	Not yet
Bangladesh	Improve freight infrastructure	Improving inland waterways and logistics services	Some progress. Various freight transport improvements.	Some progress. Emergence of private sector logistics companies
Bhutan		Policy in place. Mostly by local transporters using small trucks		Not yet. Freight industry remains largely unregulated
Brunei Darussalam		Improvement of existing road for more efficient freight transport within the Brunei		
Cambodia				
India	Fright improvement programs			
Indonesia		Development of logistic system	Freight improvement program	

Japan		Largely in Place	Largely in Place	Largely in Place
Lao PDR	CO2 Reduction in Freight Transport			
Malaysia		Largely in Place	Largely in Place	Largely in Place. Electrified Double Tracking Project
Maldives				
Mongolia		Some progress	Some progress	
Myanmar		Some progress	Some progress	Some progress. Plan 6 inland ports with modernized facilities
Nepal			Integrated Check Post (ICP). Preparing ICD structure for Nepal – China Border	Intercity highway and rail line improvements.
Pakistan	Mentions this goal	Largely in Place	Some progress. Rail is being promoted for long haul	Some progress. Rail is promoted for long haul
People Rep. of China		Some progress	More than 23,000 km railway track will be made over the next five years	
Philippines				Some progress Davao Sasa Port Modernization Project
Rep. of Korea	Sustainable Transport and Sustainable Transport and Logistics Development Act	Largely in Place. Integrated system for port logistics		Largely in Place. Integrated logistics programs.
Russian Federation				
Singapore			Not yet	
Sri Lanka	Mentions this goal	Promotion of train and inland waterway cargo transport		Expansion of private logistics services
Thailand		Some progress	Some programs	Multi-modal logistics. Shift from truck to vessel or railway.
Timor Leste				Improving intercity highways and port facilities.
Viet Nam		Some progress. Green freight transport project	Some progress. Continue to implement the route map to apply ITS	Some progress. Development of logistics services.
Counts	*6*	*13*	*13*	*14*

IV. Cross-cutting strategies

13. Adopt a zero-fatality policy

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Some progress. Work on speed control, strict drivers license procedures, vehicle registration, and insurance system is being implemented.	Not yet
Bangladesh	For pedestrian safe mobility different initiatives taken	National Road Safety Action Plan in place, and various support programs	Largely in Place. Traffic safety policies and programs.	Largely in Place. National Road Safety Council is in place
Bhutan	Decade of action for road safety	Mostly in place so far as road transport is concerned. Target to reduce deaths below 5 per 100,000 (against 17 currently)		Not yet. Vehicle crash still a major public health concern
Brunei Darussalam		Many programs including traffic calming, improved education and enforcement.	Government set a national target of 35% reduction in fatality rate by 2020.	
Cambodia	Various safety programs			
India	Some safety programs	Road safety programs and audits		
Indonesia				Adopt a zero-fatality policy and "road map"
Japan		Fully Completed	Largely in Place	Largely in Place. Many measures to prevent accidents.
Lao PDR		Road traffic safety in EST Strategy		
Malaysia	Safety inspections	Largely in Place	Largely in Place	Largely in Place. Road Safety Plan and Department. Automatic enforcement
Maldives	Halve road transport deaths by 2015			
Mongolia		Some progress	Some progress	
Myanmar		Some progress	Some progress	Largely in Place. Establish National

				Road Safety Council and Road Safety Action Plan
Nepal			Introduce speed control, drunk driving enforcement, road Safety Council formed by 2015	Nepal Road Safety Strategy and Action Plan (2013-2020)
Pakistan	Mentions this goal	Largely in Place	Some progress	
People Rep. of China		Not yet		
Philippines		Developing an integrated road accident data base system	Road Transport Patrol	Liability insurance requirements and breathalyzer acquisition largely in place.
Rep. of Korea		Largely in Place. Target to annually reduce traffic casualties by 10%.		Largely in Place.
Russian Federation				
Singapore	Mentions this goal		Fully Completed	
Sri Lanka	Road safety	National Road Safety Policy and Road Safety council. Regulations		Road safety committees with wider participation assisting local police stations
Thailand	Mentions this goal	Largely in Place. Road Safety Action Plan	Largely in Place. Road Safety Action Plan	Largely in Place. Decade of road safety
Timor Leste		3 ZEROs Vision		Not yet. Establishing basic road safety activities.
Viet Nam	Ensure safe traffic	Largely in Place. 3E project (Engineering, Education, Emergency)	Some progress	Some progress. Decree requiring route monitoring devices in some vehicles.
Counts	*11*	*17*	*13*	*14*

14. Promote monitoring of transport health impacts

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan		Introducing safety programs and burden of disease study	Not yet	Some progress
Bangladesh		Clean Air and Sustainable Environment (CASE) project to conduct a health impact study on air pollution	Some progress. Various air quality programs.	Largely in Place

Bhutan	Decade of action for road safety	Vehicle Emission Standard in place		
Brunei Darussalam		Monitoring device to measure emissions installed at major road		
Cambodia	Mentions this goal			
India	Mentions this goal	Emission reduction, traffic safety, and active transport programs		
Indonesia				Promote monitoring of transport health impacts.
Japan		Largely in Place		
Lao PDR				
Malaysia		Some progress		
Maldives				
Mongolia		Some progress	Some progress	
Myanmar		Not yet	Some progress	
Nepal			Air pollution health impacts study is ongoing .	
Pakistan		Largely in Place	Not yet	
People Rep. of China		Not yet		
Philippines			Replacement of 2-stroke tricycles	Some. Special Vehicle Pollution Control Fund and vehicle modernization
Rep. of Korea	Encourages NMT	Some progress. Promotion of green transportation		
Russian Federation				
Singapore			Some progress	
Sri Lanka	Safety and health	Strict control on public place smoking		
Thailand		Not yet	Health impact assessments	
Timor Leste				Not yet.
Viet Nam		Some progress	Some progress	Some progress. Noise mapping around airport
Counts	*5*	*15*	*10*	*7*

15. Establish country-specific air quality and noise standards

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan	Air Pollution Control and	Introduced National Ambient Air Quality Standard	Not yet. National Ambient Air Quality	Some progress

	Mitigation Regulation		standard for Afghanistan	
Bangladesh		Published air quality standards for PM, O3, SO2, NOx and CO	Some progress. Air and noise standards	Largely in Place. Emission standards and continuous air monitoring stations established.
Bhutan	Mentions this goal	Air pollution standard in place and VES in but not in case of Noise. Air quality Monitoring Station in Four locations		Vehicle Emission Standards being reviewed
Brunei Darussalam		Regulate emission and noise test through computerized vehicle inspection center		
Cambodia	Mentions this goal			
India	Established standards and monitoring stations	National Ambient Air Quality Standards for 12 Pollutants		
Indonesia	Urban air quality monitoring	Application of emission standards		Establish air quality and noise standards. Preparing Euro 4 standards regulation
Japan		Largely in Place	Largely in Place	Largely in Place. Constant monitoring of air and noise pollution
Lao PDR		Vehicle emission standards in EST Strategy		
Malaysia		Some progress	Some progress	Some progress. Ambient air and noise monitoring. Regulations for Vehicle Type Approval.
Maldives		Vehicular emission standards		
Mongolia		Some progress Emission control standards	Some progress. National Committee on Air Pollution Reduction established	
Myanmar		Some progress	Some progress	
Nepal				

Pakistan	Set emission standards	Some (Piloting-Design)	Largely in Place. CLEAN (Central Laboratories for environmental Analysis and Network)	
People Rep. of China		Not yet		
Philippines		Adoption of Euro regulations		Some. Shifting to low emission vehicles.
Rep. of Korea		Largely in Place.		Largely in Place.
Russian Federation				
Singapore	Mentions this goal		Largely in Place	
Sri Lanka				Air quality standards monitored
Thailand	Mentions this goal	Fully Completed	Fully Completed	
Timor Leste				Not yet.
Viet Nam		Not yet	Some progress. National Technical Regulation on Ambient Air Quality	Some progress. Report on national air quality.
Counts	*8*	*19*	*11*	*11*

16. Implement sustainable low-carbon transport initiatives to mitigate global climate change

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan		Became party to Kyoto Protocol	Some progress. In 2013 Afghanistan became party to Kyoto Protocol	Some progress
Bangladesh		Bangladesh Climate Change Strategy and Action Plan and NAPA in place	Some progress. Bangladesh Climate Change Strategy and Action Plan in place	Largely in Place
Bhutan	Mentions this goal	Submitted Second National Communication and GHG Inventory (2011) – Transport sector accounts for highest energy related GHG emissions (44%) in Bhutan		Aspiring to achieve Zero Emission in the road transport sector
Brunei Darussalam		Not yet		
Cambodia				
India	Mentions this goal	National Action Plan on Climate Change		

Indonesia		Indonesia will reduce emission GHG 26%	Indonesia Climate Change Sectoral Roadmap (ICCSR)	Implement sustainable low-carbon transport initiatives
Japan		Largely in Place	Largely in Place	Largely in Place
Lao PDR				Low Carbon Transport Study in Lao PDR
Malaysia		Some progress	Some progress	Largely in place.
Maldives	Carbon neutral transport system	Carbon neutral goals for 2020		
Mongolia		Some progress. National Action Program on Climate Change	Some progress.	
Myanmar		Some progress	Some progress	
Nepal				
Pakistan		Largely in Place	Some progress	Pakistan Sustainable Transport (PAKSTRAN) project aims to reduce greenhouse gas (GHG) emissions
People Rep. of China		Some progress		
Philippines		National EST Strategy	National EST strategy is consistent with the Bangkok Declaration 2020	Some. Green airport and vehicle modernization.
Rep. of Korea	Carbon emission reduction targets and plans	Largely in Place. Comprehensive green transportation action plans		Largely in Place.
Russian Federation				
Singapore			Largely in Place	
Sri Lanka				
Thailand	Mentions this goal	Some progress. Master Plan of Sustainable Transport Development and Climate Change Mitigation	Largely in Place	Plan for GHG reduction in Transportation Sector
Timor Leste				Ratified the Kyoto Protocol and other emission reduction agreements.
Viet Nam	Encourage emission reductions	Some progress	Some progress	Some progress. Developing urban public transport systems.
Counts	*6*	*17*	*12*	*13*

17. Adopt social equity as a transport planning and design criteria

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Some progress	Some progress
Bangladesh		National Integrated Multimodal Transport Policy (NIMTP) addresses the issues of improved quality, safety and security for all, especially for women, physically challenged and senior citizens	Largely in Place. Priority seats reserved in public transport. Transport services have been ensured for low-income groups. Special bus services for women and students have been introduced.	Largely in Place
Bhutan		Some plans to provide special facilities to women, elderly and disadvantaged group of people using public transport services.	Introduced reserved seats for people with special needs in all city buses	Reserved seats for people with special needs in all city buses
Brunei Darussalam		Provide disabilities facilities for the public at the commercial area		For the promotion of the public transport services, the Government announced the fares waived for seniors citizen above 70 and children below 7 on 2015.
Cambodia	Gender perspective			
India	Social equity goals			
Indonesia		Social equity and gender perspectives in EST Strategy		Special train wagons for women.
Japan	Barrier free planning		Some progress	Largely in place. Promotion of "barrier free" facilities and society
Lao PDR	Gender and transport			
Malaysia		Largely in Place	Some progress	Largely in place. New terminal, buses and rail with Universal Access features.
Maldives	Equitable distribution of wealth			
Mongolia		Not yet	Not yet	
Myanmar		Not yet	Some progress	Some progress.

Nepal				
Pakistan			Some progress. Exclusive Transport for woman in Punjab & KPK. Societies for female university student.	
People Rep. of China		Not yet		
Philippines				Fully completed: discounts for senior citizens and Persons With Disability. Coaches designated for women, senior citizens and PWDs
Rep. of Korea		Some progress. Traffic policy to improve the right to use for vulnerable social group		Some progress.
Russian Federation				
Singapore				
Sri Lanka	Mentions this goal		Largely in Place	
Thailand	Social equity & gender perspectives			Pedestrian ways with support to the visually handicapped
Timor Leste		Some progress. Policy for persons with disabilities and elderly	Some progress	
Viet Nam		3 ZEROs Vision		Not yet.
Timor Leste		Some progress. Reduce fare for disabilities and elderly	Some progress	Some progress. Policies for people with disabilities to use different transport modes.
Counts	*7*	*12*	*11*	*13*

18. Encourage innovative financing mechanisms for sustainable transport

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan			Not yet	Not yet
Bangladesh		PPP cell has been created in the Roads and Highways Department.	Some progress. PPP and road user charges in place for selected highways and bridges.	Largely in Place
Bhutan	PPP transit operation	Parking fees in urban areas, tax on		System of collecting parking fee in some bigger towns

		fuel already in place.		
Brunei Darussalam		Some progress		
Cambodia				
India	PPP programs	PPP in urban transport Systems-construction, operation and maintenance		
Indonesia				
Japan		Largely in Place		
Lao PDR				
Malaysia		Largely in Place	Largely in Place	Largely in place. Green Technology Financing Scheme Sustainable Mobility Fund for Public Transport
Maldives				
Mongolia		Not yet	Not yet	
Myanmar		Not yet	Some progress	Not yet.
Nepal	Dedicated funds			
Pakistan	Mentions this goal	Largely in Place	Largely in Place	
People Rep. of China		Some progress		
Philippines		Road User's Tax Law – Special fund for air pollution control	7.5% of Motor Vehicle User's Charge is allotted to the Special Vehicle Pollution Control Fund.	Largely in place. Various PPP Projects with varying financing mechanisms.
Rep. of Korea		Some progress		
Russian Federation				
Singapore			Not yet	
Sri Lanka				More parking meters
Thailand		Some progress. PPPs used in some transport projects.		
Timor Leste				Not yet. Uses World Bank loans.
Viet Nam	Mentions this goal	Some progress. BOCM from Metro project	Some progress	Some progress. Many BOT (Built-Operation-Transfer) transport projects
Counts	*5*	*14*	*9*	*9*

19. Encourage widespread distribution of information and awareness on sustainable transport

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth

Afghanistan			Some progress	Not yet
Bangladesh		National Integrated Multimodal Transport Policy (NIMTP) proposed for integration of different modes	Largely in Place. Awareness programs through training, campaigns, radio and TV promotional, etc. are in place.	Largely in Place
Bhutan		Mobilizing and coordination of LCES. Action Plan for Clean Air and Sustainable Mobility: Thimphu (pilot to start)		
Brunei Darussalam		EIA will be included in all new Road projects		
Cambodia				
India	Some programs	Education programs		
Indonesia	Education and encouragement programs	Smart driving training for 50,000 people / year		
Japan		Largely in Place	Largely in Place	Largely in Place. Many programs.
Lao PDR	Information and Public Awareness Information and Public Awareness			
Malaysia		Largely in Place	Largely in Place	Largely in Place.
Maldives				Works to promote environment friendly vehicles/vessels
Mongolia		Not yet	Not yet	
Myanmar		Some progress	Some progress	
Nepal				
Pakistan			Some progress	
People Rep. of China				
Philippines		National EST Strategy. National Communications on Climate Change	Road Transport Patrol	Some progress. Continuing release of messages on environmentally sustainable projects for public communications.
Rep. of Korea	Many promotion programs	Some progress. Open-platform for private sector transport information		Largely in Place
Russian Federation				

Singapore	Many campaigns		Largely in Place	
Sri Lanka				
Thailand		Not yet	Awareness campaigns	Awareness campaigns
Timor Leste				Not yet.
Viet Nam	Propagandize, disseminate information, develop human resources and capacity	Largely in Place. Building transport sector sustainable strategy action plan.	Some progress	Some progress. Ministry of Transport developing plans for sustainable development, green growth and climate change emission reductions.
Counts	*6*	*13*	*11*	*10*

20. Develop dedicated and funded institutions that address sustainable transport-land use policies

Country	2011, Delhi, Sixth	2013, Bali, Seventh	2014, Colombo, Eighth	2015, Kathmandu, Ninth
Afghanistan		Establishment of Environment Fund is under discussion	Largely in Place. Capacity enhancement activities on strengthening the ESIA procedures initiated.	Some progress
Bangladesh			Some progress. Several research and training institutions	Largely in Place
Bhutan				
Brunei Darussalam		Some progress		
Cambodia				
India				
Indonesia				
Japan		Largely in Place	Largely in Place	Largely in Place. National Institute for Land and Infrastructure Management
Lao PDR				DRAFT EST officially submitted to the Government of Lao
Malaysia		Largely in Place	Largely in Place	
Maldives				
Mongolia		Some progress. Clean Air Fund	Some progress. MOTI (Mongolian Transport Institute)	
Myanmar		Some progress	Some progress	
Nepal				
Pakistan			Some progress. JICA funded Karachi	

			Circular Railways initiative	
People Rep. of China		Some progress		
Philippines				Largely in place. Environmentally Sustainable Transportation Initiatives Unit
Rep. of Korea	Green transport programs	Some progress		Largely in Place.
Russian Federation				
Singapore			Largely in Place	
Sri Lanka				
Thailand		Not yet	Not yet	
Timor Leste				Not yet.
Viet Nam		Largely in Place. Law on Environment Protection, Green Growth strategy	Some progress. Law on Environment Protection approved in 2014.	Some progress. Environment Protection law approved in 2014.
Counts	*1*	*9*	*9*	*8*

Bangkok Declaration Progress Review Conclusions

This analysis evaluated the Bangkok Declaration progress reports submitted at the four most recent EST in Asia Forums. In total, 74 documents were reviewed and their responses interpreted to indicate each country's progress toward 20 specific goals. The results are summarized in the tables above. These indicate whether a goal was mentioned, and when possible, rated as "Not Yet," "Some progress," "Largely in Place" or "Fully Completed." In many cases, notes or examples are provided. The tables include counts of the number of times that goal was mentioned in a particular year's reports.

This review faced several challenges. Not all member countries provided progress reports, not all reports were posted on the Forum websites, and not all reports provided information on each goal. More than half of the posted documents are slideshows which provided varying types of information; summarizing those documents in the tables often required considerable judgement. Less than a quarter of countries submitted Bangkok Declaration Progress Reports that followed the prescribed form, and many of these are incomplete, unclear, or inconsistent from one year to another. For example, in some cases a goal rated "Fully Completed" or "Largely in Place" was subsequently given a lower rating of "Some progress or even "Not Yet," but a careful reading of the documents suggests that such downgrading in rankings probably indicate differences in the way that different respondents interpreted the questions rather than actual reversal of progress. As a result, there are probably many "false negatives" in which this analysis fails to reflect countries actual progress toward these goals, and the contributions that EST Forums had on this progress.

Despite these problems, this review provides useful information. Many countries demonstrated progress toward these goals, with a progression from "Not yet" or "Some (Design – Pilot)" to "Largely In Place" or "Fully Completed," supported by examples of recently implemented policies and programs. In particular, during the last decade many EST Forum countries have established integrated transport and land use planning programs, alternative fuel and emission reduction policies, and new non-motorized transport and public transit development programs. In several cases, the Bangkok Declaration was referenced as a reason for implementing a particular policy or project, or the EST Forums were cited as a source of support for implementation. Even countries that so far have made little progress toward certain goals have EST Forum guidance and resources that may be useful in the future. It is impossible to determine whether these policies and programs would have been implemented anyway, this review suggests that the EST Forums made a substantial difference; by helping countries set goals and targets, and exposing public officials and practitioners to new ideas and methods, the Forums expanded and accelerated policy changes and program developments that will help create more sustainable transportation systems in Asian countries.

References

Bangkok Declaration progress reports were obtained from the following Forum websites.

Sixth Regional EST Forum in Asia, 4-6 Dec 2011, New Delhi, India (www.uncrd.or.jp/index.php?page=view&type=13&nr=12&menu=222). Afghanistan, Bangladesh ,

Bhutan, Cambodia, India, Indonesia, Japan, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Philippines, Rep. of Korea, Singapore, Sri Lanka, Thailand, Viet Nam. (19)

Seventh Regional EST Forum in Asia, 23-25 April 2013, Bali, Cambodia, (www.uncrd.or.jp/index.php?page=view&type=13&nr=108&menu=222). Afghanistan, Bangladesh, Bhutan, Brunei Darussalam (Presentation / Country Report), Cambodia, India, Indonesia, Japan, Lao PDR, Malaysia (Presentation / Country Report), Maldives, Mongolia (Presentation / Country Report), Myanmar (Presentation / Country Report), Nepal, Pakistan, People Republic of China (Presentation / Country Report), Philippines, Republic of Korea (Presentation / Country Report), Russian Federation, Timor-Leste, Thailand (Presentation / Country Report) / Sri Lanka, Viet Nam (21)

Eighth Regional EST Forum in Asia (Integrated Conference of BAQ2014 and Intergovernmental Eighth Regional EST Forum in Asia), 19-21 Nov 2014, Colombo, Sri Lanka (www.uncrd.or.jp/index.php?page=view&nr=116&type=13&menu=198). 8th EST Forum - Country Report Guideline, Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Thailand, Viet Nam (16)

Ninth Regional Environmentally Sustainable Transport (EST) Forum in Asia, 17-20 Nov 2015, Kathmandu, Nepal (www.uncrd.or.jp/index.php?page=view&type=13&nr=956&menu=232) Afghanistan, Bangladesh, Bhutan, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Republic of Korea, Sri Lanka, Thailand, Philippines, Timor Leste, Viet Nam (18)

A Comprehensive Assessment of EST Progress and Achievements Made by Member Countries on the Implementation of the Goals of the Bangkok 2020 Declaration

Final Report
June 2017

PART -2

This part of the background paper has been prepared by Robert Earley, for the Tenth Regional EST Forum in Asia. The author thanks the UNCRD including C.R.C. Mohanty and Dr. Ganesh Joshi for their valuable comments and insights. The views expressed herein are those of the author only and do not necessarily reflect the views of the United Nations.

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Section 1: Overview – Trends in Progress towards the Goals of the Bangkok 2020 Declaration

The Fifth Regional Environmentally Sustainable Transport (EST) Forum in Asia (2010, Thailand) marked a key moment in the development of environmental sustainable transportation policy, when the participants unanimously adopted the "Bangkok 2020 Declaration", demonstrating commitment towards realization of safe, secure, affordable, efficient, and people- and environment-friendly transport systems in Asia. With the design and acceptance of the Declaration's twenty EST goals and associated indicators, countries in Asia started along a systematic, thoughtful pathway, informed by the avoid-shift-improve (ASI) strategic framework, to cleaner development through sustainable transportation. The Bangkok 2020 Declaration called for innovative and smart solutions to significantly reduce air pollution, traffic congestion and road accidents while moving towards a more livable and sustainable society in Asia.

Today, nearly seven years after the adoption of the Bangkok 2020 Declaration, many countries in Asia have made use of these goals to establish policies, institutions, technologies, infrastructure, financing and partnerships to result in effective, efficient and beneficial transportation systems. A review of the progress in EST in Asia produced for the 9th EST Forum in Kathmandu[1] noted that the impacts of the EST Forum and the Bangkok 2020 Declaration goals help countries to implement sustainable transport sooner and with fewer difficulties than they would have done without this system in place (p. 28). The present report aims to collate and summarize the accomplishments of Regional EST Forum member countries as they have ***self-reported***, and to produce a means of assessing on a regional basis the progress that has been made toward the 20 EST goals of the Bangkok 2020 declaration.

What are some of the trends being observed as countries in Asia move towards the goals of the Bangkok 2020 Declaration? This section will seek to briefly review some of the new policies and initiatives being developed by countries including governance, technological interventions, motorized and non-motorized transportation policies, and use of the internet for new approaches to transportation.

As will be described in detail in Section 2 of this report (see Figure 3), goals 1, 5 and 13 of the Bangkok 2020 Declaration have seen the most progress since 2010. These goals indicate what some of the trends might be in terms of implementation of EST principles in Asia, and the sections below will feature some of these trends.

Goal 1: Integrate land-use and transport planning

Integrated transportation and land-use planning has become a key feature of countries focused on EST. Planners have learned that when land-use is matched with public transportation in an intimate and integrated fashion, land-use planning can help ensure that there are enough riders to pay for public transport systems, while the public transport systems, if planned for convenience, can reduce costs for riders, and speed up local roads. The Republic of Korea described this relationship well in its report to the 7th Regional EST Forum, stating that land-use and transport planning was integrated through budget, issue and place-centered comprehensive planning, bringing together urban authorities, transport authorities and finance under a common budget. While not all countries described integration so clearly, nearly all of the countries of the Regional EST Forum now have some cities or national authorities that are bringing transport and land-use planning together to reap the benefits for their cities and economies.

[1] Litman, Todd. 2016. "Major Challenges, Progress and Achievements by Asian Countries on the Implementation of EST Policies and Measures from Aichi EST Forum (2005) to Kathmandu EST Forum (2015)". Nagoya: United Nations Center for Regional Development. Online: http://www.uncrd.or.jp/?page=view&nr=984&type=13&menu=198 as viewed on April 5, 2017.

Goal 5: Improving public transportation

BRT and MRT are the keywords for public transportation improvement in the Regional EST Forum. 12 of the 24 countries in the report have noted that they have either completed detailed planning or have BRT or MRT systems under construction in order to improve public transportation in their cities. BRT systems are especially noted for their relative ease and low-cost of installation, and their ability to improve the walkability of cities once they are in place. In addition to BRT systems, some countries such as Thailand, Pakistan and India are doubling down, using CNG buses to avoid the emissions associated with diesel buses. While energy prices remain low, and supply of natural gas is easy to acquire, this will be a trend in Asian cities that are increasingly dealing with diesel emission pollution.

Goal 13: Increasing safety

Safety is perhaps the top concern of governments in Asia when they are considering how to improve their transport systems, and this is the reason why Goal 13 has received the most attention through the EST process. Rates of collisions and traffic fatalities are very high in developing Asian countries, with some countries reporting that the equivalent of whole villages die on highways every year. Eleven countries have focused on reducing drink driving through enforcement and heavier penalties; Nine countries are improving speed regulation on roads as well as enforcement – including automated or enforcement or CCTV monitoring. Helmet and seat belt laws are also becoming more prevalent and better enforced.

New Technologies, New Trends

The P.R. China has revolutionized high-speed rail by rolling out the world's largest high-speed rail system in a matter of a few years. While Japan and Republic of Korea have long had high-speed rail projects in place, other countries like Indonesia, Thailand, Viet Nam, Singapore, Malaysia and India have taken the cue from P.R. China that high-speed rail is very accessible and desirable for countries to improve their connectivity and avoid developing the high-carbon aviation industry.

Bike sharing has likewise taken off in the past 5 years. Japan, India, P.R. China, Singapore, Thailand, the Philippines and the Republic of Korea are all in various stages of rolling out or encouraging bike-sharing in their countries. These systems, enabled by mobile phone technology or RFID cards or other payment systems, allow transit users to cut valuable minutes off their last mile trips from the public transport station. The P.R. China has seen another generation of bicycle sharing rolled out over the past year by the private sector. Mobike, Ofo, and a number of other companies have appeared en masse on the streets of Shanghai, Beijing, Guangzhou and other cities, providing bicycles that can be unlocked via a mobile phone app, allowing bikes to be left anywhere, and avoiding the expensive and often intrusive bike rack infrastructure needed for systems that use non-mobile phone based systems. Mobike, the first of these bike share systems, plans to manufacture 5.6 million shared bikes to be put on China's streets in 2017. A new cycling revolution might be on its way.

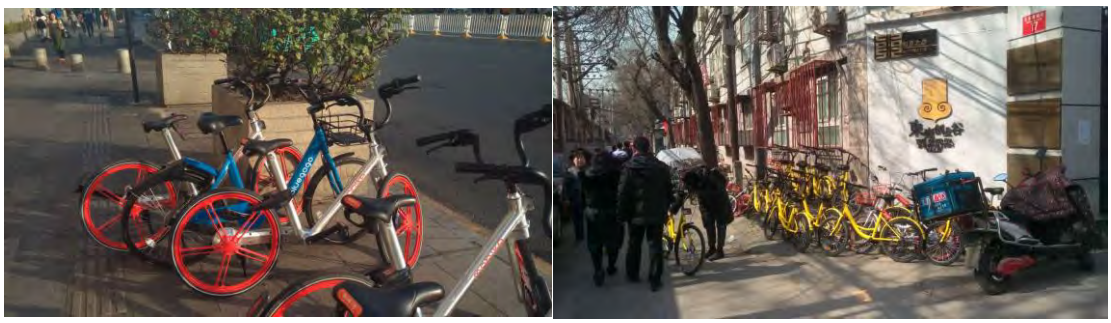


Figure 1 Mobike and ofo shared bicycles in the streets of Shanghai and Beijing, P.R. China. These new privately-operated bike-share systems do not require base stations to operate, they are activated by mobile phone. Images: Robert Earley

As countries and cities make use of the Bangkok 2020 Declaration goals as a guide for EST development, they are developing their own approaches to environmentally sustainable transport, often with the assistance of development banks and agencies. These developments will be explored in Section 2, a country-by-country and goal-by-goal assessment of EST progress and achievements made by member countries on the implementation of the goals of the Bangkok 2020 Declaration.

Section 2: Country-by-Country and Goal-by-Goal Assessment of EST Progress and Achievements Made by Member Countries on the Implementation of the Goals of the Bangkok 2020 Declaration

Methodology

Undertaking a comprehensive assessment of EST strategies in Asia is a large task. Due to the constraints of the project, the review was primarily limited to the information that had been self-reported by countries to the Regional EST Forum process since the 5th Regional EST Forum, when the Bangkok 2020 Declaration was made. The 5th EST Forum was included in this comprehensive analysis to act as a baseline from which countries would move forward in the context of the Declaration.

The first task of the report was collating data from each country on each goal over the period to date of the Bangkok 2020 Declaration and creating the tables in Annex 1 of this report. In some instances, the results from global reports were also included in as many countries as possible, particularly in the areas of e-government, for which the United Nations Department of Economic and Social Affairs published a report in 2016[2]; Road safety, for which the World Health Organization published a review in 2015[3]; and, fuel quality and automotive emission standards for most countries, in a database maintained by the Partnership for Clean Fuels and Vehicles.[4] In a limited number of cases, some follow-up was undertaken with internet research, particularly in cases where a significant initiative was reported in one year, but not in the next. Follow-up internet research was used to ascertain whether or not the initiative was still underway or not, although very frequently, no follow-up information was available in English, or follow-up information was unclear as to the outcome of the project or programme. Those internet resources are listed directly in the text of the specific goal-country report found in Annex 1.

The summary, while comprehensive, is not able to identify trends on its own, because the data set is simply too large and unstructured. Therefore, the second task of the report was to try to identify trends from a comprehensive perspective on regional progress towards the goals of the Bangkok 2020 Declaration. The main objectives were to understand which goals were being addressed by more countries, which ones were progressing faster, and which ones still need attention. The other objective was to identify which countries were becoming leaders in EST implementation in the Region.

In order to analyse the comprehensive progress of countries in Asia along the 20 goals of the Bangkok 2020 Declaration, a point system was developed to attempt to evaluate the importance and progress each country had made. The point system is described in Box 1, below:

Box 1 Methodology for Calculating EST Progress Points

[2] United Nations Department of Economic and Social Affairs. 2016. United Nations E-Government Survey 2016: E-Government in Support of Sustainable Development. New York: United Nations. Online: https://publicadministration.un.org/egovkb/en-us/reports/un-e-government-survey-2016. As viewed on 1 March 2017.

[3] World Health Organization. 2015. Global Status Report on Road Safety 2015. Geneva: World Health Organization. Online: http://www.who.int/violence_injury_prevention/ road_safety_status/2015/en/ As viewed on 1 March 2017.

[4] Partnership for Clean Fuels and Vehicles. 2017. Webpage: "Where we Work: Asia Pacific". Online: http://drustage.unep.org/transport/pcfv/where-we-work/asia-pacific As viewed on 3 March 2017.

EST Progress Points for countries in Asia are based on a simple formula that uses the self-assessment reported by countries in their most recent Annual Report forms (See Annex 2) and gives a small adjustment based on whether or not consistent progress in pushing for improved EST implementation has been observed over the reports of the past five years. These points have been listed for countries that submitted a country report for the 9th or 10th EST Forum, in time for the data to be included in the report. The points are meant to provide a quantitative means for comparing progress along EST goals by the region as a whole, as well as by countries according to their own self-ratings.

$$Points_{Progress} = (Points_{Self-rated} \times 0.75) + (Points_{adj} \times 0.25)$$

Where:

$Points_{Progress}$ the self-rating of a country for progress toward a specific goal. It is a weighted average of $Points_{Self-rated}$ and $Points_{Adj}$, where they are weighted at 75% and 25% respectively.

$Points_{Self-rated}$ are the levels of action each country reported for each goal in its most recently completed country report questionnaire from the 9th or 10th EST Forum where points are given on a scale of 1 to 4:

Not yet = 1 point
Some Progress = 2 points
Largely in Place = 3 points
Fully Completed = 4 points

$Points_{Adj}$ is an adjustment factor assigned by the author that attempts to take a broad look at progress made by each country for each goal over the period since the Bangkok 2020 Declaration. This factor is a subjective score between 1 and 4 and reflecting the author's interpretation summary of progress between the 5th EST Forum and the 10th EST Forum†, and is based on the following rule:

If a country has reported on a goal consistently over the period since the Bangkok 2020 Declaration, demonstrating progress year-on-year, then:

$$Points_{Ajd} = Points_{Self-Rated} + 1.$$

If a country has reported on a goal, but had not reported consistently year-on-year, or progress was not clear, then:

$$Points_{Adj} = Points_{Self-Rated}$$

If a country has reported on a goal, but the content of the report was not relevant to the goal, or inconsistent with the overall summary, then:

$$Points_{Adj} = Points_{Self-Rated} - 1$$

The impact of $Points_{Adj}$ is meant to be moderate, especially due to its subjectivity and incomplete data availability. As a result, it is given a 25% weighting in the $Points_{Progress}$l rating, and does not differ dramatically from $Points_{Self-rated}$.

†Countries that did not complete a "Country Report" questionnaire from the 9th or 10th EST forum were not included in the points analysis because there are likely to have been many changes since the Regional EST Forums before that time, or because they would not have answered the "action rating" question. This exception includes P.R. China, India, Lao P.D.R., Maldives, the Russian Federation, the Republic of Korea, Cambodia, and for some goals, Japan, Singapore and others. Because the Islamic Republic of Iran has only recently joined the EST Forum Process, it has also not been included.

Note on data source quality
Due to the resource constraints of the project, the primary source of data are the reports that countries have made to the EST forum themselves, including the progress reported on policies and projects, as well as the degree to which progress had been made (i.e. "Not Yet", "Some progress", "Largely in Place", and "Fully Completed"). It was noted during the data collection process that from year to year, the focus of some country reports would change, and the degree of action reported would also fluctuate.

For example, many countries and goals, degree of progress would vary from year to year towards fully completed. However, it was often found that progress toward some goals would switch from "Largely in Place" in one year, to "Not Yet" in the next, making evaluation of progress for this research very difficult without a check on the ground. As noted in a review by Litman (2016), these changes in ratings likely reflect the interpretation of the individual filling in the questionnaire rather than of changes in the situation on the ground, and that as a result, "there are probably many 'false negatives'" which will not be properly controlled for in this analysis. It is hoped by undertaking a comprehensive assessment of each country's performance in each Bangkok 2020 goal, that progress on each goal can be summarized and documented in this report.

It is recommended that in future studies, the EST Secretariat provide resources for more ground-truthing of trends that are identified by regional comprehensive progress reports.

Reference:
Litman, Todd. 2016. Major Challenges, Progress and Achievements by Asian Countries on the Implementation of EST Policies and Measures from Aichi EST Forum (2005) to Kathmandu EST Forum (2015) (Pre-Final Draft). Nagoya: United Nations Center for Regional Development.

Results

This section identifies trends in the comprehensive implementation of the Bangkok 2020 Declaration goals across Asia according primarily to the reports delivered by countries to the Regional EST Forums since the 5th Regional EST Forum. In order to provide a comprehensive analysis, the data will be used to describe patterns and trends across the region in terms of which EST strategies and goals are receiving the most attention and progress, and which countries are achieving the best outcomes at this time.

EST Strategies

The Bangkok 2020 Declaration's 20 goals embed the strategic EST strategies of "Avoid"-"Shift"-"Improve", plus a variety of Cross-Cutting Strategies. The goal-by-goal and country-by-country comprehensive analysis (Annex 1) was analyzed to determine which of these EST strategy groups were seeing more progress over the period since the 5th EST Forum (Figure 2).

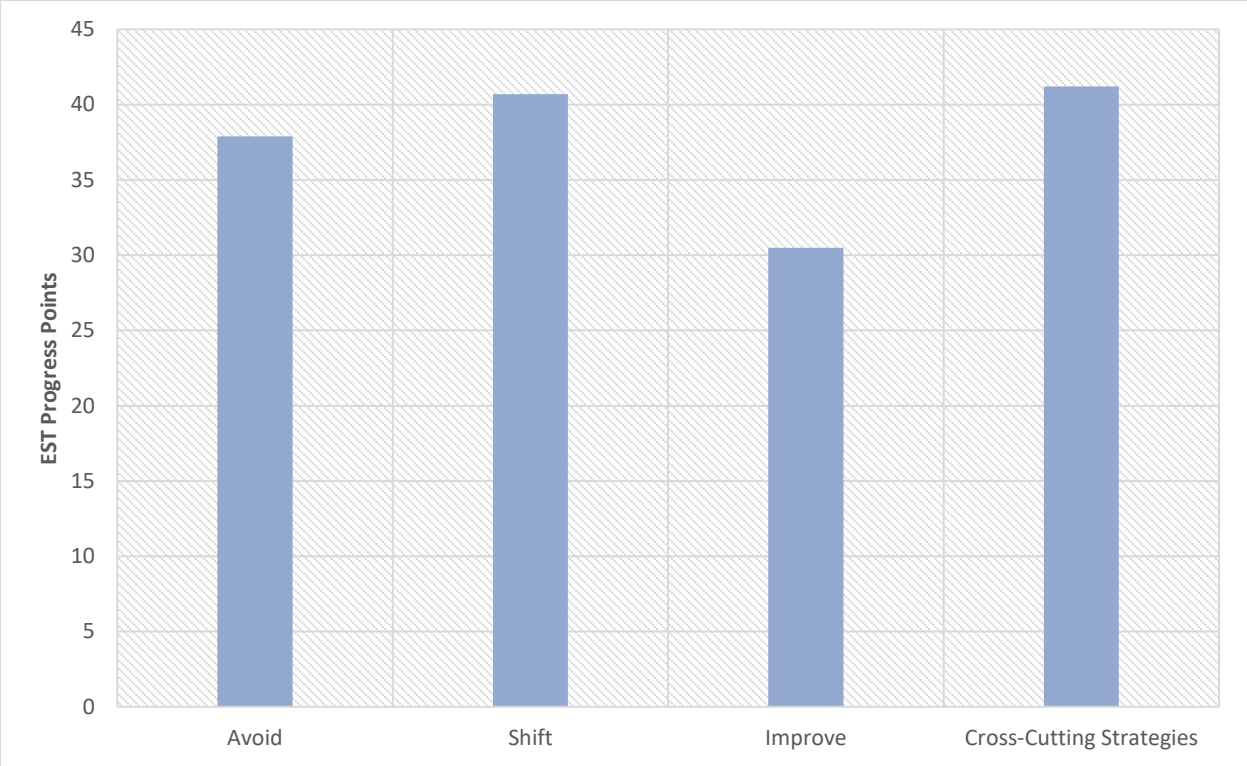


Figure 2 Average progress within each strategy group using data from all reporting countries[5]. The goals achieving more progress in countries tend to be in the Cross-Cutting Strategies and "Shift" Strategies, while "Improve" goals could use more attention.

The analysis found that of the Avoid-Shift-Improve strategies, "Shift", which includes Non-Motorized Transport, improved public transport, Transportation Demand Management, and improved inter-city passenger and goods transport, saw the most progress over time. "Improve" strategies, which include sustainable transport fuels and technologies, standards for fuel quality, fuel efficiency and emissions, inspection and maintenance (I/M), intelligent transport systems (ITS) and improved freight transport efficiency, saw considerably lower progress over the time period. Meanwhile "Avoid" strategies fell in between. Cross-cutting strategies include a suite of broader policy measures that may not necessarily fall within the area of transportation specifically; therefore, it is difficult to compare the performance of these strategies with the Avoid-Shift-Improve strategies.

To understand more about how these strategies were approached by countries, the EST goals of the Bangkok 2020 Declaration can also be analysed one-by-one.

EST Goals

The EST Goals were analysed one-by-one to try to get a picture of how Asian countries were approaching progress towards environmentally sustainable transportation in their reports to the Regional EST Forums. This analysis looked at the average progress score for all of the reporting countries for each goal (Figure 3).

[5] 17 countries that submitted the "Country Report" questionnaire to the 9th or 10th Regional EST Forums are included in this analysis. Excluded countries include P.R. China, India, Lao PDR, Maldives, the Russian Federation, The Republic of Korea and Cambodia. For countries where data points were missing, they were filled with the *mean average* value of progress-adjusted points for that country. This occurred for three data points for Japan, and one data point for Singapore.

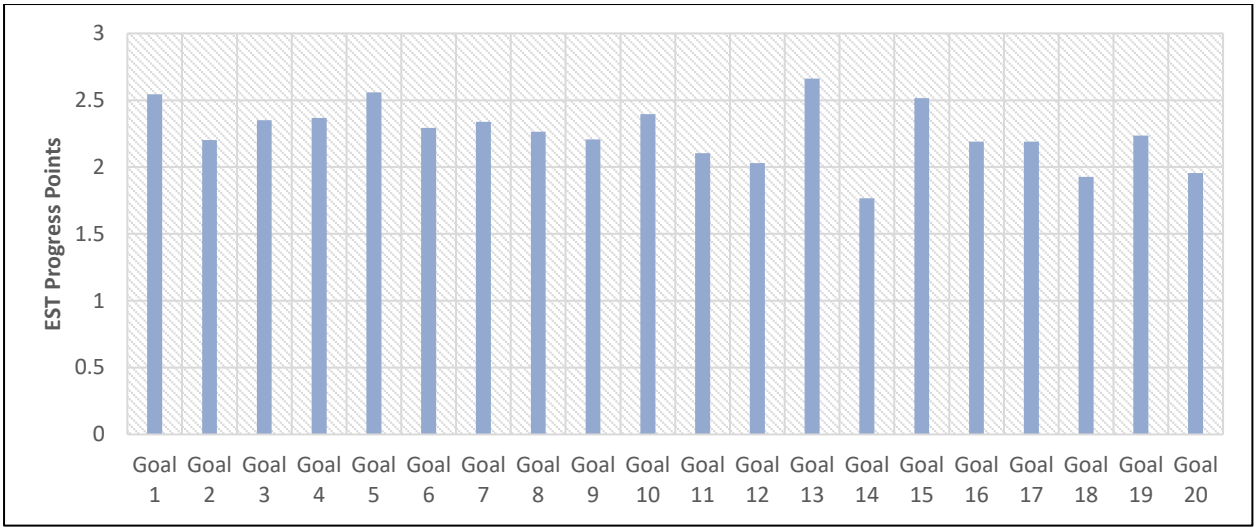
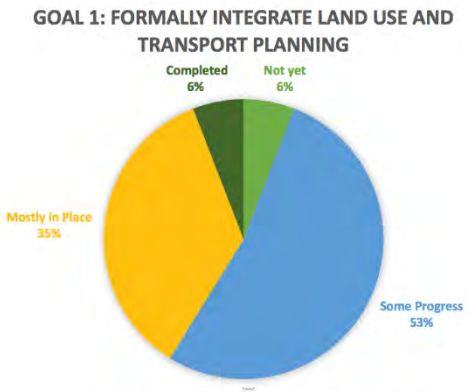


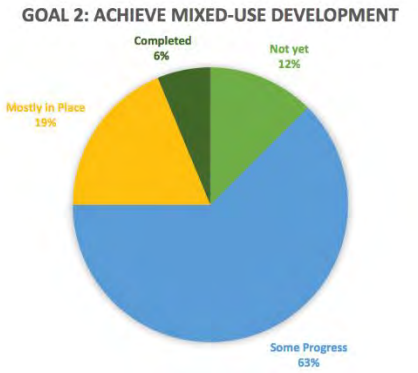
Figure 3 Average progress achieved per goal by all reporting countries. Goals 1, 5, 13 and 15 saw relatively high progress, while goals 14, 18 and 20 saw progress less than other goals. For the names and numbers of the Goals, please see Annex 3

This analysis suggests that on average, the goals that are experiencing the most progress in countries are goals 13 (road safety), 5 (improved public transport), 1 (formally integrate land-use and transport planning), and 15 (establish air quality and noise standards). These are the goals that, on average, are closer to achieving "Largely in Place" across all reporting countries. Meanwhile, Goal 14 (monitoring health impacts), goal 18 (encourage innovative financing mechanisms), and goal 20 (promote good governance) are goals that, on average, do not even meet the standard of "Some progress" and may need more attention across the region. Most of the goals seem to have exceeded the standard of "some progress" to varying degrees, indicating that countries on the whole are continuing along the pathway of meeting most of the Bangkok 2020 Declaration goals.

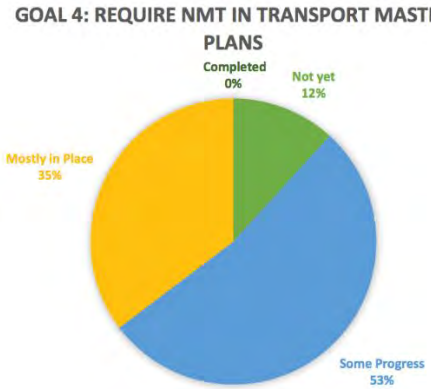
Figure 4, covering the following pages, is a goal-by-goal analysis of the percentage of countries achieving various states of progress, from "Not Yet", to "Some Progress" to "Mostly in Place" to "Completed", according to what they have reported in their most recent country reports. These pie charts should allow countries to understand how they are individually performing compared to other countries in the context of each goal.

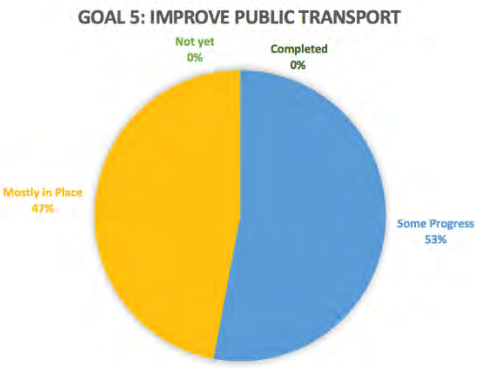
Typically, most of the goals are achieved to a "some progress" state, while "completed, and "not yet" remain minorities. Significantly, all countries report that they are at some state of progress in promoting public transportation (Goal 5) and reducing motorized vehicles use through TDM (Goal 6). The goals with the highest level of "Not Yet" are all not conventional transportation-related goals, including Goal 12 on improved freight efficiency, goal 14 on monitoring of health impacts, goal 18 on innovative financing mechanisms, and goal 20 on dedicated and funded institutions for sustainable transport – indicating that some countries may require more assistance in perhaps understanding, prioritizing, and funding progress towards these goals.

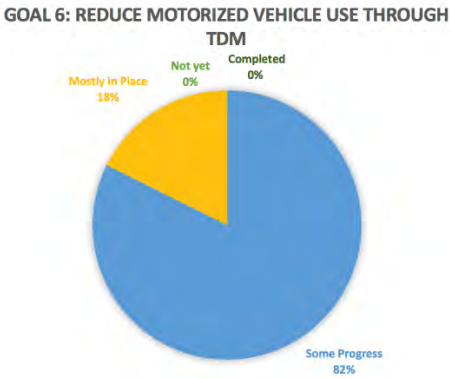

GOAL 1: FORMALLY INTEGRATE LAND USE AND TRANSPORT PLANNING
Completed 6%
Not yet 6%
Mostly in Place 35%
Some Progress 53%

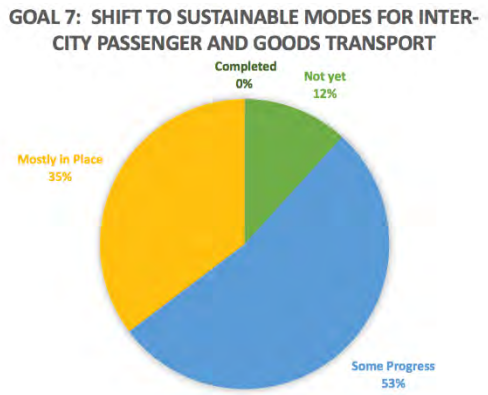

GOAL 2: ACHIEVE MIXED-USE DEVELOPMENT
Completed 6%
Not yet 12%
Mostly in Place 19%
Some Progress 63%

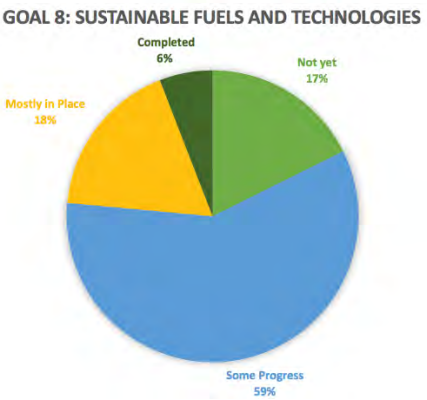

GOAL 3: INSTITUTE INFORMATION AND COMMUNICATION TECHNOLOGY
Completed 0%
Not yet 13%
Mostly in Place 40%
Some Progress 47%


GOAL 4: REQUIRE NMT IN TRANSPORT MASTER PLANS
Completed 0%
Not yet 12%
Mostly in Place 35%
Some Progress 53%

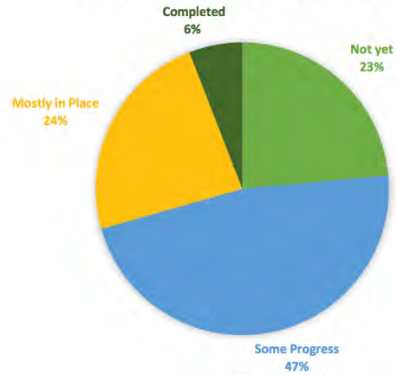

GOAL 5: IMPROVE PUBLIC TRANSPORT
Not yet 0%
Completed 0%
Mostly in Place 47%
Some Progress 53%


GOAL 6: REDUCE MOTORIZED VEHICLE USE THROUGH TDM
Mostly in Place 18%
Not yet 0%
Completed 0%
Some Progress 82%


GOAL 7: SHIFT TO SUSTAINABLE MODES FOR INTER-CITY PASSENGER AND GOODS TRANSPORT
Completed 0%
Not yet 12%
Mostly in Place 35%
Some Progress 53%

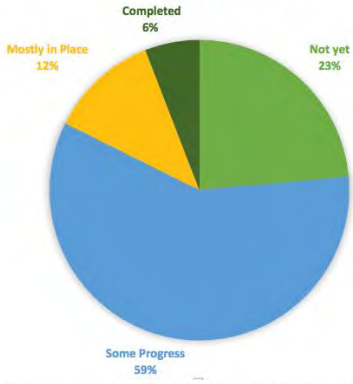

GOAL 8: SUSTAINABLE FUELS AND TECHNOLOGIES
Completed 6%
Not yet 17%
Mostly in Place 18%
Some Progress 59%

GOAL 9: SET STANDARDS FOR FUEL QUALITY, FUEL EFFICIENCY AND TAILPIPE EMISSIONS

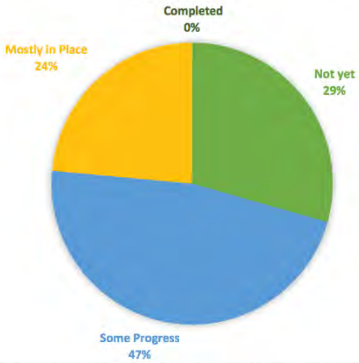


GOAL 10: ESTABLISH I/M SYSTEMS

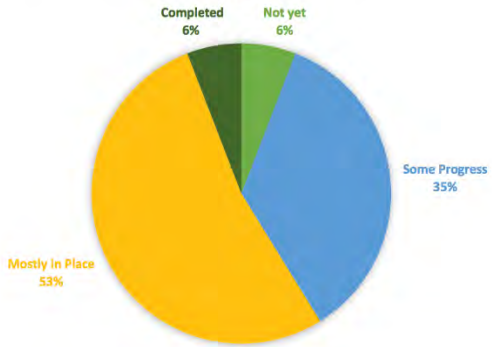
GOAL 11: ADOPT ITS



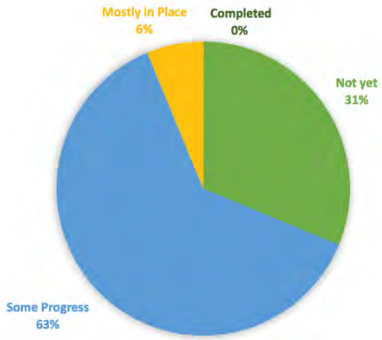
GOAL 12: ACHIEVE IMPROVED FREIGHT TRANSPORT EFFICIENCY



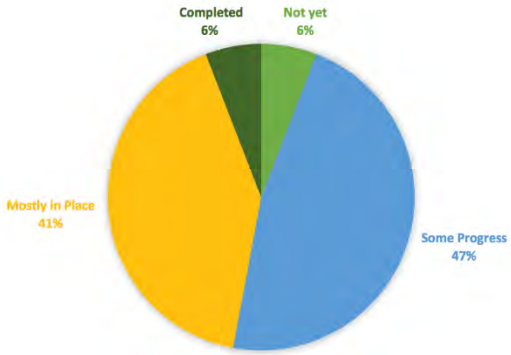
GOAL 13: ADOPT A ZERO-FATALITY POLICY FOR TRANSPORT



GOAL 14: PROMOTE MONITORING OF HEALTH IMPACTS



GOAL 15: ESTABLISH AIR QUALITY AND NOISE STANDARDS



GOAL 16: IMPLEMENT LOW-CARBON TRANSPORT INITIATIVES

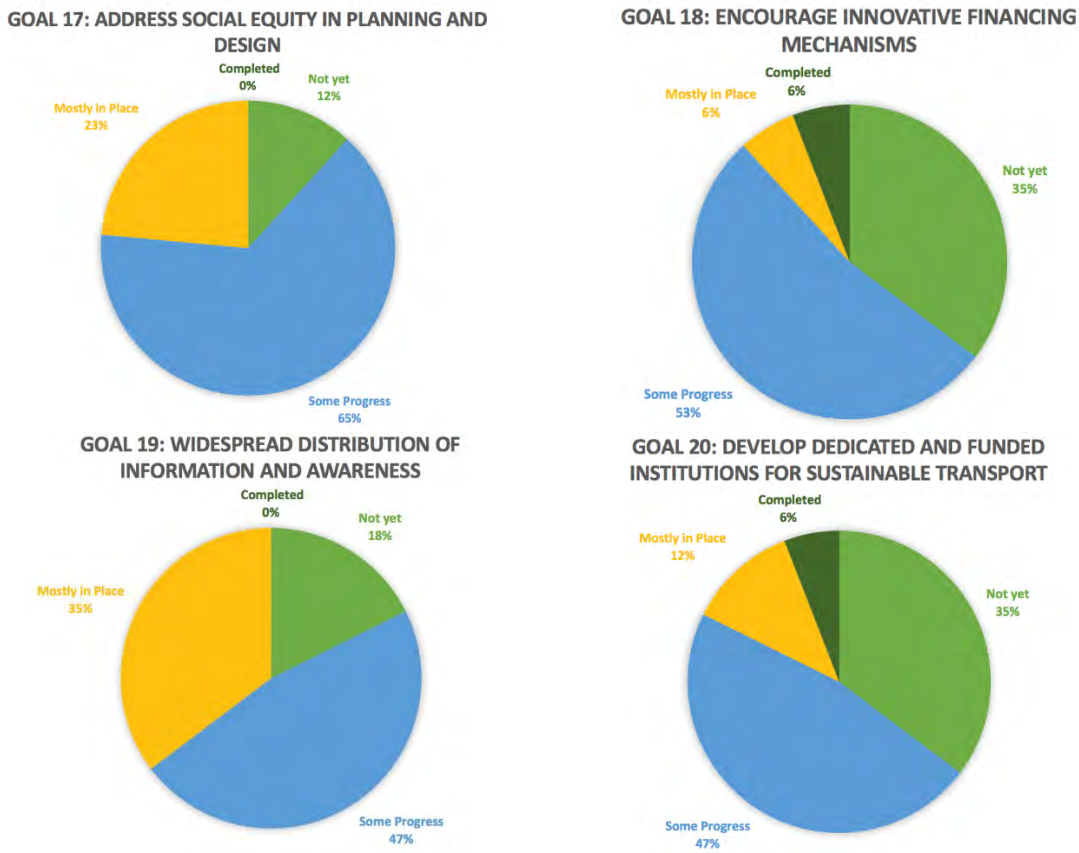


Figure 4 Goal by goal analysis of achievement by Countries in the EST Region

Specific Technology and Strategy Analysis

In addition to analysis of the goals as general groups, selected specific EST strategies and trends were analyzed for the purposes of this paper. These selected technologies and strategies were meant to be specific, and of special interest outside the achievements of the region outside of the EST goals alone. This analysis was conducted by doing a word search for the target technologies and strategies through all the recent national EST reports of participating countries, and counting the countries that mentioned progress or completion of those specific technologies and strategies (Figure 5). It should be noted that this analysis is limited by what countries wrote in their own national EST reports. Ground-truthing of these records was beyond the scope of this study.

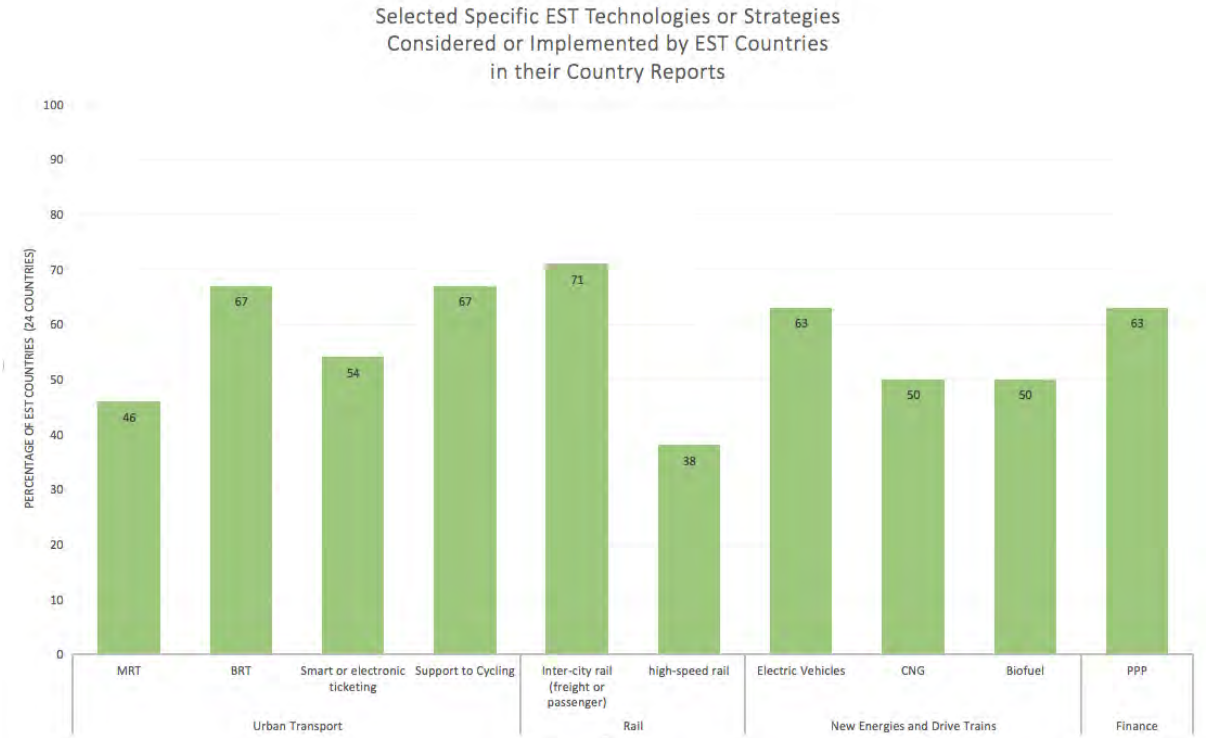


Figure 5 Word search analysis of countries considering or implementing specific EST technologies and strategies mentioned in their recent National EST Reports.

Progress by countries

The final analysis undertaken for this section of the report is meant to identify the performance of countries in comparison to each other. Figure 6 is a ranking of the countries that have reported using the EST Forum questionnaire at the 9th or 10th EST Forums according to their progress-adjusted points. A list of countries and their self-reported points, compared to their progress-adjusted points can be found in Annex 2.

It should be expected that advanced economies in the region should achieve the most progress along the way to the Bangkok 2020 Declaration goals, given the economic, academic and industrial tools at their disposal. Yet economic development is not the only force at play, given the high performance of some countries. This will be analysed in the Discussion.

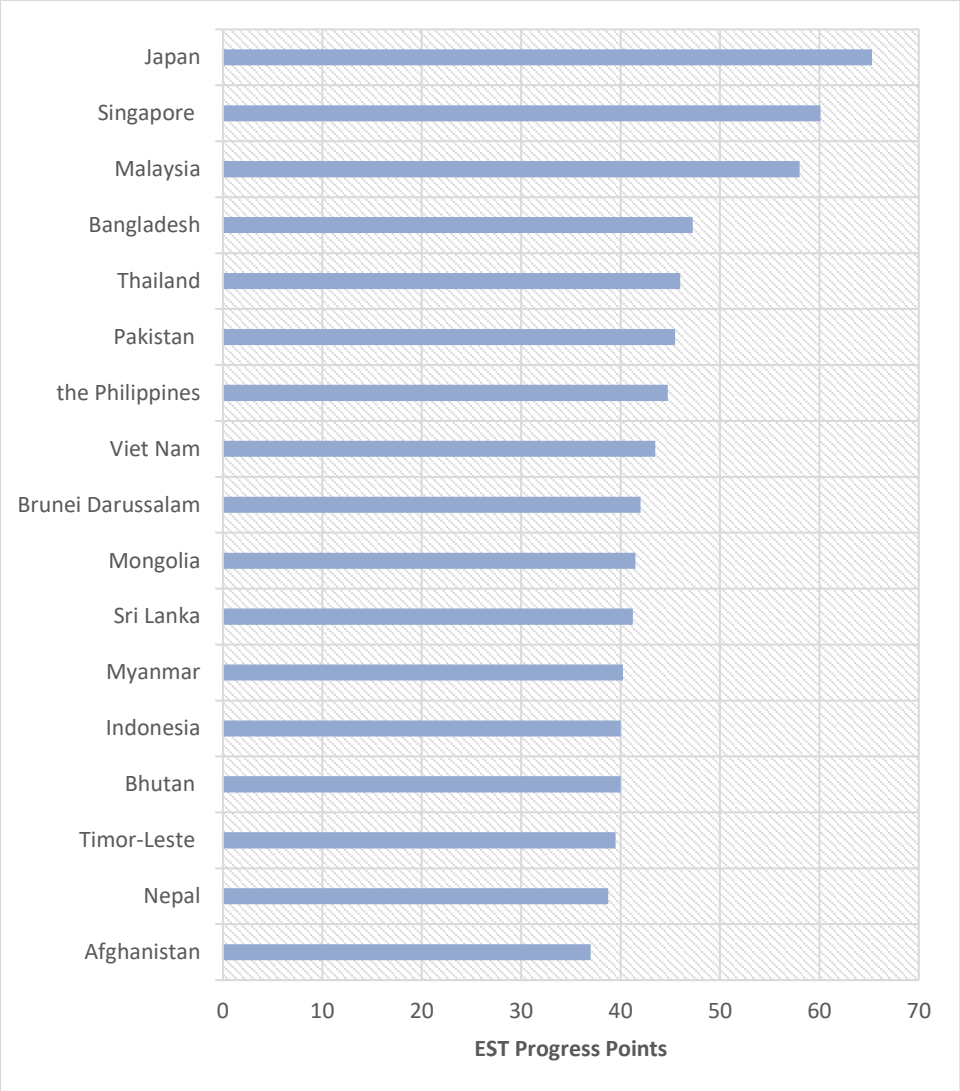


Figure 6 Progress achieved by the reporting countries over the period since the Bangkok 2020 Declaration at the 5th Regional EST Forum. In many ways, progress matches trends in economic development of the countries. Countries that did not report adequate data are not included.

Excluded countries

Some countries were excluded from the numerical analysis of this paper because they had not provided up-to-date completed Country Report questionnaires to the Regional EST Forum process, or had not undertaken self-rating, and therefore had no data that could be used for analysis. This section will describe the performance of some of the countries.

Cambodia

Road safety has been the primary focus of Cambodia's reports to the Regional EST Forum process. While the country has not reported recently on progress along most of the 20 goals of the Bangkok 2020 Declaration, Goal 13 saw updates and progress over time. The country has identified safety as a major issue, identified locations and specific safety practices to improve, and has rolled out a new road traffic law mandating helmet use for motorbike riders and significantly increased fines for drink driving.

P. R. China

While the P.R. China has not made a country report to the Regional EST Forum since the 7th Regional EST Forum in Bali, the country has made significant progress in most of the EST

goals. Being a very large country, it is difficult to summarize specific initiatives, but key themes are as follows:

- Comprehensive urban and regional planning featured in the 13th Five-Year Plan, including macro-regional developing around the Beijing-Tianjin-Hebei region, Yangtze River Delta region and Pearl River Delta region.
- Local TOD initiatives abound in P.R. China, but also international TOD initiatives, including the Belt and Road initiative, which seeks to build up infrastructure along trade routes across Asia and Europe.
- An explosion in ICT to reduce and optimize travel. High internet access rates, advanced online shopping, payment, banking and e-government systems help to avoid trips, while internet taxi services, internet bicycle rental services, and advanced online mapping, telematics and real-time transit information help to optimise transportation without personal vehicles.
- TDM strategies such as odd/even license plate limits, limits to total license plate issuance, parking pricing reform and discussions on congestion fees.
- Massive roll-out of high-speed passenger rail provides comfortable, modern rail service between major cities with a reasonable speed.
- Aggressive fuel, tailpipe emission and fuel consumption standards, with China 5/V (Euro 5/V equivalent) nationwide by 2017.
- Large electric vehicle program makes electric vehicles and plug-in hybrid electric vehicles a common sight on streets of P.R. China.
- Initiation of the China Green Freight Initiative and pilot projects on drop-and-hook logistics systems, as well as updating of the national standard GB1589-2016, which defines the weights, dimensions and arrangements of trucks and trailers for freight.

Air pollution, traffic congestion and technical innovation have all forced P.R. China to dramatically improve transport systems, making it an important leader for Asia. On the whole, P.R. China would likely have increased average progress scores for most EST goals.

India

India's most recent report was to the 8th Regional EST Forum in Colombo, Sri Lanka. India has seen progress in its transport system, but also still has many opportunities to improve. Some of the highlights from recent reports include:

- The National Mission for Sustainable Habitat and National Urban Transport Policy have created an opportunity for integrated land use, transportation planning and transportation operation.
- India has focused on public transportation as a key for EST, aiming to replicate the experience of metro transport through BRT development.
- Alternative fuels are a major initiative, with CNG buses rolled out across at least 60 city public bus systems and auto LPG to 270 cities for three-wheeler conversions. A natural gas highway was under development between Delhi and Mumbai.
- A dedicated freight rail corridor is developing to facilitate faster and more efficient freight transport across the country.
- The Golden Quadrilateral, connecting Delhi, Mumbai, Chennai and Kolkata, is being used as a growth opportunity for ITS; parking systems, electronic toll collection, automated travel information systems and intelligent signal control are being used in New Delhi, Bangalore and Pune.

Generally speaking, India faces increasing challenges due to air pollution, congestion and economic efficiency that are pushing for improved EST performance, and is likely to have increased the average performance for most EST goals if it had made reports to the EST forum.

Republic of Korea

The Republic of Korea (ROK) is a well-developed economy in Asia, and has dedicated resources to EST and generally performs well. Highlights of its activities include:

- Budget, issue, and place-centered comprehensive planning is practiced in ROK cities, bringing together urban authorities, transportation authorities and finance under an integrated budget.
- Republic of Korea is a leader in e-government development, which aims at active sharing of data and removing barriers between agencies for collaboration. Additionally, ROK identified 50 smart city projects in 2013.
- A "Make Drivers Uncomfortable, Passengers Comfortable" campaign was launched to support TDM measures including pedestrian priority areas, traffic calming measures, and "transit malls" that only public transit vehicles may use. Other TDM measures include congestion charges, IT-based remote working, car "rest days" based on license plate number, parking controls, etc.
- High speed rail has been implemented as a means of attracting passengers to ride public transportation, but also as an anchor for TOD.

Lao PDR

The most recent comprehensive EST report made to the Regional EST Forum was during the 7th EST Forum at Bali. As a result, information may be out of date. However, some progress has been reported:

- An Urban Transport Master Plan was developed for Vientiane which included a commitment to have two bus routes available to passengers within 150 m of any point in the core area.
- Electric tuktuks were piloted in Luanprabang, and by 2015, 14 3-wheelers were operating with 2 battery exchange stations. In 2017, these vehicles were observed to be operating alongside other modes of transport in the city.

Maldives

As a nation of many small islands, the Maldives presents an interesting case for EST in Asia. Yet common approaches still exist:

- Master planning was underway for Hulhumale Island, a newly-reclaimed space for residential development. The Island will be connected to the International Airport and to Male by bridges, with public transportation services available. The master plan also takes into account facilities for pedestrians and cyclists.
- Maldives aims to reduce emissions from its light duty car fleet to 140g CO_2/km by 2015 and to increase biofuels in transport to 10%.
- NMT is still a main means of travel on many islands, where cars and motorbikes are not practical.
- An import duty adjustment was made to encourage electric vehicle import and discourage internal combustion motorized vehicles (a "fee bate" strategy)

The Russian Federation

Unfortunately, the Russian Federation has not submitted reports to the Regional EST Forums during the period after the Bangkok 2020 Declaration, and as a result, no data is readily available for reporting.

Discussion

Countries in Asia are making remarkable advances in the direction of achieving the Bangkok 2020 Declaration goals. While a numerical analysis suggests that countries have taken off on a path towards increased progress, a reading of the reports of countries over the years demonstrates that for many

countries, most of the EST concepts that were in the conceptual stage in 2010 are now well into planning and even financing or implementation phases.

Figure 7 illustrates how countries with average scores of 1.8 – 2 ("some progress") are still in the concept, experimentation, and understanding phases of some of their EST work, while countries with more mature governance structures and economies tend to be scoring around 3 points, or "Largely in Place" – a sign of maturity and saturation, if looked at through the lens of technology.

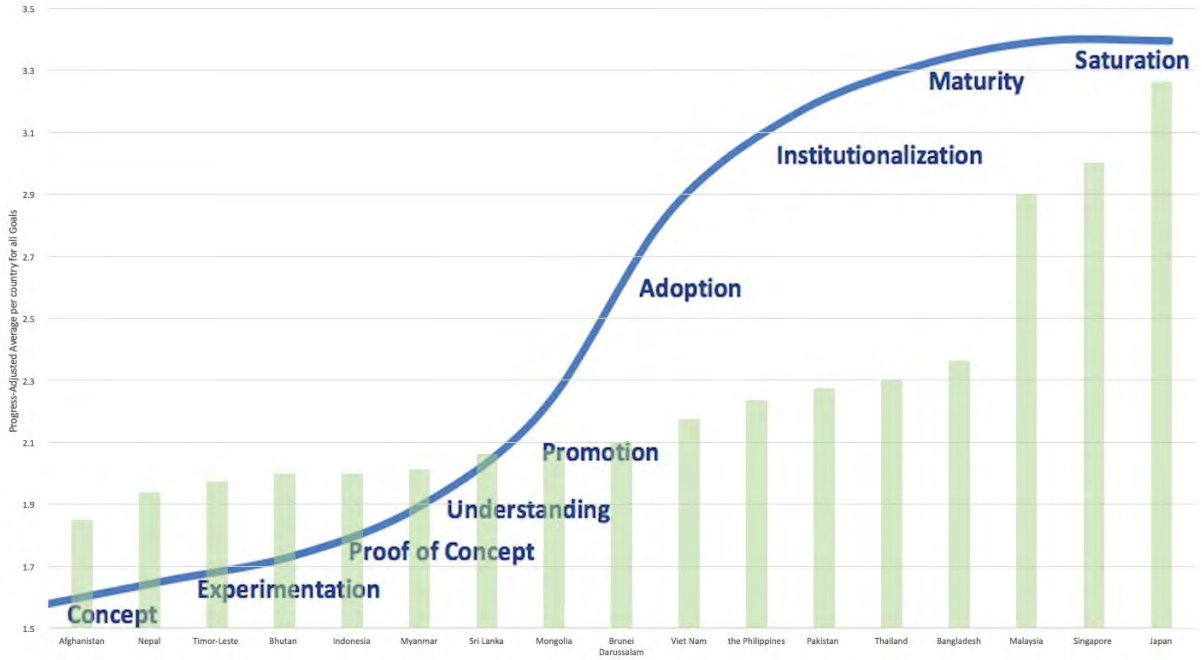


Figure 7 Overlay of the Innovation Deployment S-Curve cited in Litman (2016) on the ranking of country performance in terms of progress in carrying out the 20 goals of the Bangkok 2020 Declaration.

It should be noted, however, that economic development is not the only factor at play. Figure 8 suggests that EST progress achieved by countries broadly follows their levels of economic development according to GDP rates, but countries such as Bangladesh, Pakistan and the Philippines seem to be accelerating their EST performance beyond their economic peers. Indeed, in Bangladesh's reports to the EST Forum, it indicated that Dhaka is quickly growing to become one of the largest cities in the world, and policy is needed to ensure that the city doesn't collapse under its own weight. Similarly, Pakistan has taken an organized and comprehensive approach to its EST reporting that gives it a feeling of increasing performance over time. That these countries can outperform in EST progress despite their GDP ratings should give hope to all developing countries that EST is within reach.

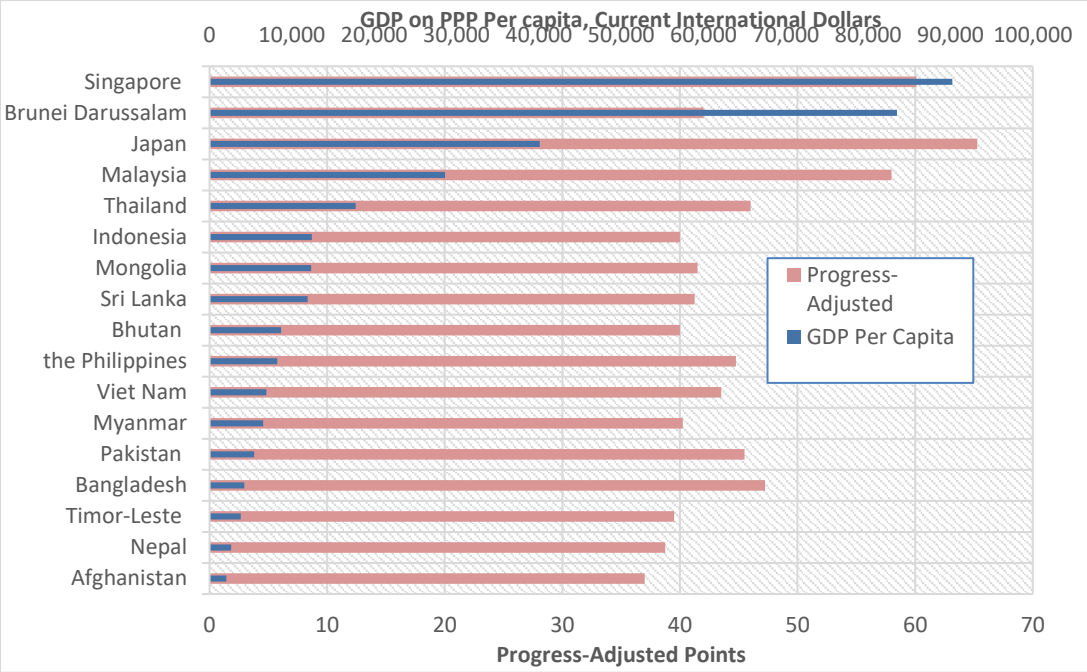


Figure 8 While a general trend is for EST Progress Points to follow GDP per capita, Some countries such as Pakistan, Bangladesh and the Philippines are starting to punch above their economic weights.

Section 3: Recommendations and Conclusions

Progress is happening in the development of EST in Asia. Countries are organizing themselves to find innovative and nationally-appropriate solutions to their transportation challenges with the help and guidance of the 20 Goals of the Bangkok 2020 Declaration and its associated indicators. In some cases, countries are starting to coalesce around solutions. CNG vehicles are proving beneficial to countries that have access to natural gas, allowing them to burn clean fuel and avoid the pollution associated with diesel. Meanwhile, electric vehicles are slowly offering an opportunity to petrol-fuelled vehicles, and more and more countries are trying to organize to accommodate and encourage their development. Public transport is starting to take real hold in more and more countries, and the concept of BRT has gained acceptance as an effective and relatively inexpensive means of providing mass transit services to populations, and creating the benefits of Transit Oriented Development around stations. And as more cities take advantage of public transportation, their urban plans and land-use planning are evolving to use those public transportation services efficiently for social and economic development. In the meantime, technological and global political changes are offering opportunities for countries to consider infrastructure such as high-speed trains, digital mapping, real-time traffic monitoring by mobile phones and bike sharing in order to improve their transportation systems.

As countries' programs improve, their reporting is also improving. At the 10th EST Forum, more countries have made use of the country report reporting questionnaire than ever before, and it is more and more useful for demonstrating progress over time. Countries are listing comprehensive laws, plans and programs that can demonstrate their progress towards their EST goals. Countries would do well to continue to use this means of reporting so as to ensure consistent progress before each Regional EST Forum.

The Country Report reporting questionnaire is useful for reporting plans and progress, but it is not calibrated to allow countries to report on the indicators that are associated with the goals of the Bangkok 2020 Declaration (Annex 4). During the analysis of national reporting for this report, it was found that no countries reported on any indicator listed in the annex to the Bangkok 2020 Declaration, and this may be in part because the national reporting form provided does not offer a specific opportunity to do

so. As countries become comfortable with progressing towards the goals of the Bangkok 2020 Declaration, they may find it useful to have a framework in place to begin reporting along some of the indicators, and this might be a good addition to the questionnaire form. Reporting on indicators will also create a more objective and consistent metric by which to measure progress in the future for all countries and the region at large. The indicators have been included in Annex 5 as a reminder to the EST countries of potential means of expressing successes in environmentally sustainable transportation practices.

Finally, now that countries are beginning to develop their own concepts for EST implementation in their countries, the UNCRD and its partners would do well to create an online database or reporting system that allows for projects, indicators and other data to be reported electronically so that it is easily searchable by countries and other stakeholders. An online database would be an important platform for sharing information and experiences, tracking data, and highlighting progress.

References Cited

The country and city EST Forum reports used in the development of this report are found on the UN Centre for Regional Development (UNCRD) website:

5th Regional EST Forum website:
http://www.uncrd.or.jp/index.php?page=view&type=13&nr=8&menu=232

6th Regional EST Forum website:
http://www.uncrd.or.jp/index.php?page=view&type=13&nr=12&menu=222

7th Regional EST Forum website:
http://www.uncrd.or.jp/index.php?page=view&type=13&nr=108&menu=222

8th Regional EST Forum website:
http://www.uncrd.or.jp/index.php?page=view&nr=116&type=13&menu=198

9th Regional EST Forum website:
http://www.uncrd.or.jp/index.php?page=view&nr=956&type=13&menu=198

10th Regional EST Forum website:
http://www.uncrd.or.jp/index.php?page=view&type=13&nr=984&menu=198

Other documents used in the development of this report are as follows:

Litman, Todd. 2016. Major Challenges, Progress and Achievements by Asian Countries on the Implementation of EST Policies and Measures from Aichi EST Forum (2005) to Kathmandu EST Forum (2015) (Pre-Final Draft). Nagoya: United Nations Center for Regional Development.

Partnership for Clean Fuels and Vehicles. 2017. Webpage: "Where we Work: Asia Pacific". Online: http://drustage.unep.org/transport/pcfv/where-we-work/asia-pacific As viewed on 3 March 2017.

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Annex 1: Goal-by-goal, country-by-country detailed assessment of progress around the goals of the Bangkok 2020 Declaration (2010-2020)

Goal-1: Formally integrate land-use and transport planning	
Afghanistan	From a state of difficulty in 2010, Afghanistan has gradually improved its planning capacity and undertaken some design and piloting of land-use and transport planning integration. Specifically, the country has undertaken the ANDS, the national development strategy and vision 2020 for Afghanistan putting priority on urban planning including transport planning (reported during the 7th EST forum), integrated EST as a strategy in its Strategic Urban Air Quality Management Framework (reported during the 8th EST forum), and begun an Environmental and Social Impact Assessment of housing schemes in its major cities (reported during the 9th EST forum).
Bangladesh	Bangladesh has developed various long-term strategies and plans that are meant to integrate transportation and land-use planning. · The Strategic Transport Plan for Dhaka, 2005, is in place to be implemented over a period of 20 years, and was reported to be under revision during the 8th EST Forum in 2014, and a Dhaka Structure Plan should be implemented 2016-2035, according to the country's report to the 9th EST Forum. · The National Integrated Multimodal Transport Policy (NIMTP), mentioned in the 2010 5th EST Forum Report was approved in 2013, emphasizing the need to reduce travel demand through better integration of transport planning and land use (www.rthd.gov.bd), and was reported in place by 2015. · The Dhaka Transport Coordination Authority was put into place for transport sector coordination in grater Dhaka. DTCA prepared a Strategic Transport Plan (STP) for Dhaka to be implemented over a period of 20 years. Chittagong Development Authority, Khulna Development Authority and Rajshahi Development Authority organizations also ensure proper integration of land-use and transport planning. Implementation of Mass Rapid Transit (MRT) Line-6 and Bus Rapid Transit (BRT Line-3, Joydevpur – Airport) were ongoing in 2014 – by November 2016, newspapers had reported that the MRT would be under construction for 5 years.
Bhutan	Until 2011, Bhutan's reports focused on improved land use planning, without referring directly to transportation planning as well. In fact, EST implementation reports from the 5th EST forum focused on improving vehicles more than integrating land use and transport planning. With the assistance of the ADB, the Bhutan Transport 2040 Integrated Strategic Vision was produced, outlining the period of transition that the country is going through, and how transport can be catalytic for changing the socioeconomic development of the country. Meanwhile, from the 5th to the 9th EST forums, more and more urban centers developed local area plans and followed an integrated land use and transport planning process. In its report to the 10th EST Forum, Bhutan stated that Thimphu Structural Plan has identified transport corridors and bus terminals compatible with land use, and that local area plans now have provisions for transport infrastructure.
Brunei Darussalam	Brunei Darussalam, faced with increasing car ownership and use and associated traffic congestion and traffic collisions, injuries and fatalities, the Government of Brunei commissioned the Land Transport Master Plan and the Wawasan 2035 to reduce car dependence, congestion, journey time delay and pollution while reducing costs for individual communities and investors, supporting economic growth and improving social inclusion and improving quality of life for local people and visitors alike. Policy PD1, identified in the Land Transport White Paper 2015 specifically identified that land use development and transport planning should be integrated, and that Transport for Brunei be created to coordinate its implementation.
Cambodia	No mention of land use planning or integrated transport and land use planning was made in Cambodia's reports to the EST Forums.

P.R. China	P.R. China undertakes a comprehensive planning process every five years, in the form of a five-year plan. The 12th Five-Year Plan was issued in 2011, the 13th Five-Year Plan was issued in 2016. Five-year plans form a comprehensive approach to planning that flows from national macro socio-economic targets down to gradually more specific plans for each segment of the economy and government to each locale. In principle, this is inherently an integrated land-use and transportation plan. Some of the highlights of the 12th Five Year Plan included targets for urbanization, shifting industrial development in coastal cities from manufacturing to service economy, implementation of high-speed rail, new airports, etc., along with targets for GDP to grow around 8% in 2011, and other indicative macroeconomic targets. The 13th Five-Year Plan has featured "Urbanization with Chinese Characteristics", which is still a concept under development, but which has great potential to include EST principles. The PRC is also undertaking comprehensive planning at the regional level, for example, in the Jing-Jin-Ji region (Beijing, Tianjin, Hebei) region, where these three jurisdictions which have in the past been managed separately are starting to be seen as one economic unit, complete with service industry, manufacturing, agriculture and other sectors of the economy distributed over different areas of the region, and comprehensively-planned transportation resources put in place to maximize connectivity and efficiency. One specific example in this plan could be said to be the location of Beijing's new international airport, which is located at the center of a triangle between Beijing, Tianjin and Baoding, with associated road and rail transport modes under development.
Indonesia	Integration of land-use and transportation planning has been a priority for some Indonesian cities for a long period of time. As early as 2004, Jakarta and the Jabodetabek region had undertaken land use and population density studies with the aim of laying out transportation networks (7th EST Forum). During the 9th EST Forum, it was reported that the Jabodetabek Master Plan would be implemented by the local transport authority. The Master Plan is scheduled to be completed mid-2017, and will be implemented in three phases, from 2017-2019, 2020-2024 and 2025-2029. The Master Plan, released as a Presidential Decree, will come complete with detailed regulations from ministries including the Ministries of Transportation, Public Works and Housing, Land and Spatial Planning, and plans drawn up by governors and mayors. (http://jakartaglobe.id/news/jakartas-integrated-transportation-masterplan-wrapped-soon/) At the national level, a "One Map Policy" was introduced in the Economic Policy Package VIII that, by 2019 could overlay up to 35 digital maps over a basic topological map of the country including land use, environmental resources, regulatory boundaries and transportation and utilities, allowing for more comprehensive planning and decision-making (KPPIP, 2016)
India	India's Ministry of Urban Development released the National Urban Transport Policy in 2006 with the aim of bringing about sustainable urban transport for passengers and goods (6th EST Report). Master planning and the Town Planning Scheme focus primarily on land-use. Meanwhile, the National Mission for Sustainable Habitat aimed to integrate measures related to taxation, parking and congestion charges, public carriage specifications, norms for Non-Motorized Transport, etc.
Japan	Japan's reconstruction after the Great East Japan Earthquake focused on integration of railways and community development, as reported in the 6th EST Forum. At the 7th EST Forum, Japan reported that 59 local governments had implemented strategies for urban and regional comprehensive transport, featuring Toyama City, where land-use and transport integration was underway, with public transport as the central axis and promotion of dwelling in city center and near public transport. In its report to the 8th EST Forum, Japan noted its "Low Carbon City Act", where 15 cities would promote low-carbon urban development through intensification of urban functions and promotion of use of public transport. As of the 9th EST Forum, the "Regional Public Transport Network Formation Plan" had been established and 55 plans underway.
Republic of Korea	At the beginning of the Bangkok 2020 Declaration process, Republic of Korea defined integration of land use and transport as mixing of high density development and mass transit stations so as to reduce the number of trips, shorted travel distance and crate better environments for walking and cycling. This was expanded upon at the 7th EST Forum, where the country reported that land-use and transport were integrated through the budget and issue and place-centered comprehensive planning, bringing together urban authorities, transport authorities and finance under an integrated budget. In its report to the 9th EST Forum, Republic of Korea noted that the Ministry of Land, Infrastructure and Transport has a Special Act on Metropolitan

	Regional Transport Management to set long-term and mid-term transport plans, while regional and local governments plan and implement urban transport within their jurisdictions.
Lao PDR	Lao PDR reported at the 5th EST forum that it had embarked on the Mekong River Integrated Management Project as part of Vientiane's 450th Anniversary, focusing on Safety, Cleanliness, Green, Lighting, Civilization and Charming, to be completed in 2013. The plan included riverbank protection, a riverside road, park and port improvement. According to the Lao PDR report to the 6th EST, the Vientiane Urban Transport Master Plan was completed in 2008 and is being implemented, with the assistance of Japan. Finally, the ADB was supporting a Vientiane Sustainable Transport Project, which was in the pre-feasibility phase. The project would focus on traffic management, public transport and institutional reform over a defined urban area in Vientiane. At the 7th EST Forum, Lao PDR reported that Land use planning was part of the EST Strategy, including several master plans. The Draft EST plan was official submitted to the Government of Lao PDR to be considered for approval in 2015 (9th EST Forum).
Malaysia	Malaysia's approach to integrated transport and land-use planning was largely in place by the 5th EST Forum, with the National Green Technology Council meant to promote Land Use Transport Planning and Transit-Oriented Development. During the 7th EST Forum, the National Physical Plan for Peninsular Malaysia was prepared, including a specific strategy on integrating national and urban transport networks, and recognizing the inter-relationship between land use and transport. Structure Plans for 11 states integrated urban-rural transport networks and facilitated land use and transport development as a focus. Local Plan and Special Area Plans for cities included strategies related to local transport and traffic planning and private vehicle use reduction, and formulation of Planning Guidelines of Compact Cities encouraged urban development and reduce travel using private vehicles. The "Future Cities Initiative" was under development, with one focus on green transportation and public transport. The National Physical Plan was reported completed in Malaysia's report to the 10th EST Forum, awaiting publishing by the government.
Maldives	Little information has been reported on integration of land-use planning and transportation planning in Maldives. Yet during the 9th EST Forum, it was reported that master planning was occurring for Hulhumale Island with transportation planning and land-use planned together – facilitated by the construction of a new bridge to allow for more convenient travel between Hulhumale, the International Airport, and Male. Male has also undertaken a road re-design project which allows for more parking spaces in the capital, creates more pedestrian space, redesigns the public transport network, and improves drainage on the island.
Mongolia	The Ulaanbaatar City 2030 Master Plan includes establishing land use zones in coordination with transportation planning. Plans include construction of a new network of major roads including 9 north-south corridors, 6 east-west corridors and 4 ring roads and upgrading current roads to mitigate traffic congestion and redistribute traffic. In order to support these goals, Mongolia continues to establish a legal environment for city development land policy framework and improve the legal regulation of land utilization, possession and ownership. Mongolia is implementing many plans at the national, regional and local levels, and in association with international organizations.
Myanmar	Myanmar has been steadily developing a Master Transport Plan and Project for Comprehensive Urban Transport Plan of the Greater Yangon (YUTRA) with the assistance of JICA with the final plan launched in 2014 setting a growth target of an average of 7.2 percent per year (8th EST Forum).

Nepal	Nepal has upgraded its ability to plan comprehensively in a stepwise fashion. During the 7th EST Forum, it reported that the functions of transport infrastructure and management would come under the same ministry. During the 8th EST Forum, the Transport Master Plan of Kathmandu Valley 2014 was being prepared to coordinate land use and transportation, and by the 10th EST Forum, Nepal reported that several plans were developed to achieve this goal: i. National Urban Policy 2007 moud.gov.np ii. National Urban Development Strategy 2017 www. moud.gov.np iii. Kathmandu Valley Risk Sensitive Land Use Plan www.kvda.gov.np iv. Municipal Transport Master Plan (100 municipality) www.mofald.gov.np v. District Transport Master Plan (75 District) www.mofald.gov.np vi. Development of special transport corridor and Special Economic Zones along Birgunj-Pathalaya, Bhairahawa-Butwal, Biratnagar-Ithari-Dharan etc sector
the Philippines	Integrated urban transport and land-use policy was discussed in the 5th EST Forum, especially with regards to the public transport strategic plan for Metro Cebu and Mega Manila Public Transport Planning Support System, which were expanded upon in the 6th EST Forum report. The 8th EST Forum report included a detailed description of integrated transport and comprehensive land use planning in Baguio City, including promotion of public transport, pedestrian transport in all roads, efficient circulation/access in the city to reduce travel, traffic and congestion, locating urban development services in strategic areas to reduce congestion, provision of equitable distribution or urban services, and development of an environment-friendly transport system to reduce time and energy consumption. The Metro Manila Capacity Enhancement Project to restructure public transport routes and services to meet existing and future travel demand was completed by the 9th EST Forum, and a road transit rationalization study was underway with regional transport models and urban development strategies for regions outside Metro Manila. The 10th EST Forum report notes that Traffic Impact Assessment and Traffic Management Plans are being studied, Omnibus Guidelines in Planning and Identification of Public Road Transportation Services and Franchise Issuance, and Transport was described as a sub-sector under Infrastructure of the Comprehensive Land Use Plan for local governments in the Philippines.
Pakistan	Pakistan was exploring the concept of integrated land use planning during the time of the 5th EST Forum, where it reported that newly developed communities were making use of this planning method. During the 8th EST Forum, Pakistan reported that all new development projects must include a traffic impact study prior to execution. The country noted that cities that are already largely built up may have little use for integrated transport and land use planning, yet the City of Karachi has made some effort to bring these two areas together, an idea that was enforced in the 9th EST Forum report. BRT planning was used as one example in 5 major cities in the report to the 10th EST Forum, and it was reported that the Federal government has it mandatory for new townships to have land use and transportation planning. Comprehensive transport studies have been conducted in Karachi, Lahore, Peshawar, Faisalabad, etc.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore has long focused on integrated transport and land-use planning. The country reported at the 5th EST Forum that integrated transport and land-use planning is a key pillar of enhancing is public transport system. This task was listed as “fully completed” at the 8th EST Forum, with Singapore noting that Singapore’s Master Plan and the Concept Plan provide a comprehensive and integrated planning framework to balance the many land use needs such as housing, industry, recreation, transport, and community facilities.

Sri Lanka	In its report to the 7th EST Forum, Sri Lanka first discussed integrated land use and transportation planning, in the context of new cities, e.g. Hambantota. A case study on Colombo was presented at the 8th EST forum, noting the relocation of government agencies and Defence complex with transportation integrated in the plan. Furthermore, the city had identified 7 corridors and identified ideal public transport options for them according to expected populations along those corridors in the future. Colombo was also developing Port City – a lad reclamation project targeting mixed development. The country's report to the 9th EST Forum indicated a land use concept in built on the framework of the Bangkok 2020 declaration, suggesting a network of satellite cities with transport corridors. Colombo had established a zoning plan called Zoning Plan 2020. Finally, the report to the 10th EST Forum highlights the Sri Lanka: Megalopolis Development Plan 2016-2035.
Thailand	The need to integrate land use planning and transportation planning has been identified in the 5th EST forum, where concepts of poly-centric decentralization and integrated multimodal transport were discussed as strategies for achieving EST in Thailand. Since that time, Thailand developed the "Transport and Traffic Development Master Plan" which integrated the concepts of economic prosperity, environment, and social issues and quality of life under the theme of sustainable transport. This plan has informed Thailand's participation and reporting to the EST forum, Rio +20 and UNFCCC processes. However, it was noted in the 2014 report, "Thailand Stocktaking Report on Sustainable Transport and Climate Change – Data, Policy and Monitoring" (GIZ, et al) that although transport planning is done as part of land use planning, they are not integrated and this still faces challenges.
Timor-Leste	According to the report of Timor-Leste to the 9th EST Forum, the country aims to develop and maintain an integrated transport system that expands Timorese people's access to health services, education, markets and employment. In its the 10th EST Forum report, it was noted that public administration is being decentralized to municipalities in order to reduce public servant travel.
Viet Nam	Viet Nam has focused on integrating land-use and transport planning processes at the local, regional and national levels for several years. By the 7th EST Forum, the country reported that it had created Article 13 of its Construction Law, and was aiming to revise the master plans of several transport sectors which evolved into revision of the law on railway and maritime, strategy for railway development and transport master plans in 3 economic zones of Viet Nam, which was rolled out as the National Transport Master Plan 2020. Additionally, the Law on Land had been approved by the National Assembly in late 2013 enshrining the importance of classifying land for transportation and Decree 43/2014/NĐ-CP of the Government was approved in May 2014
Goal-2: Achieve mixed-use development and medium-to-high densities along key corridors	
Afghanistan	Afghanistan's cities have grown in an unplanned fashion meaning that they are in some ways, organically mixed-use. The challenge the country faces is to do this in a systematic way, and by the 9th EST forum, Afghanistan reported that it would soon approve its national urban and transport policy and strategies to do so. In its report to the 10th EST Forum, Afghanistan discussed planning around the Railway Transport Connection with PR China through the Silk Road
Bangladesh	Bangladesh's cities, especially Dhaka, are fast growing and in need of a great amount of planning to accommodate much larger populations. While public transit planning and implementation is underway with BRT and MRT projects in various stages of construction, RAJUK is also undertaking planning in main transport corridors in Dhaka to convert some residential zones into mixed use zones. Although the city faces challenges to the existing built environment, it is approving multistoried buildings with mixed purposes including underground parking, commercial and residential purposes. Dhaka has initiative a TOD feasibility study along its two mass transit corridors and a regional development plan has been prepared that will focus on compact urban development for the 2016-2020 period including mixed and compatible land use provisions within residential clusters.
Bhutan	Traditionally, Bhutan has been a pastoral society with smaller urban population, focused more on regional transportation than urban transport. However, with more exposure to foreign culture and economy, urban areas are starting to grow, and the population of personal cars is growing quickly, at as much as 8 to 10% per year. The Transport 2040 Integrated Strategic Vision takes note of this change, identifying the need for municipalities to coordinate and provide urban services that are accessible by non-motorized transportation, such as the development of a pedestrianization plan with bus routes and appropriate parking areas in Thimphu.

Brunei Darussalam	There are limited reports regarding the approach to mixed-use planning in Brunei Darussalam. There was no specific reference to mixed-use planning or transport oriented development in the Land Transport Master Plan. Sub-Policy PD1(Land Use – Transport Integration) notes that mix and structure of land use should be addressed to reduce the need to travel, support public transport and non-motorized modes, and the Brunei/Muara Master Plan and Bandar Seri Begawan Development Master Plans were cited as examples of this work in the 7th EST Forum report.
Cambodia	No mention of mixed-use or density is mentioned in Cambodia's reports to the EST Forums.
P.R. China	China has targets both domestically and international for building up density around transportation corridors. Internationally, the One-Belt-One-Road plan brings comprehensive development and finance plans, along with financial institutions, to bear along with key transportation corridors including a marine route and an overland route heading generally in the direction of Europe. Domestically, public transport is gaining traction in many Chinese cities that were previously served by informal minibus public transit or other means. As MRT projects are constructed, density is increasing along those transport modes. Taking Beijing as a special example, the municipal government will soon be moved out of the city center to the Tongzhou suburb, requiring significant public transport upgrading. 18 transport infrastructure projects will be underway by the end of 2017 to connect Tongzhou to Beijing, including an upgraded existing subway line, and three new subway lines, highways and other projects to serve the new development and attempt to reduce the need to drive personal vehicles. (http://usa.chinadaily.com.cn/epaper/2016-12/15/content_27679678.htm)
Indonesia	While several cities in Indonesia have developed master plans and comprehensive transport plans, reports to the EST Fora have not discussed mixed-use planning or population densities around transport corridors. Surabaya, Surakarta, Tangerang and Batam report plans to develop mass transit bus and rail systems, which may be associated with population density, but this is not specifically mentioned. Jakarta reported that it planned 15 transport corridors at the 5th EST Forum, and by 2010, 10 corridors were open.
India	It was reported at the 7th EST Forum that India's National Urban Transport Policy (2006) emphasizes TOD policy and matching transport technologies to the demand and density along corridors. Furthermore, the National Mission for Sustainable Habitat focused on density, diversity and compactness.
Japan	Japan reported during the 6th EST that compact city development would be a focus of reconstruction after the Great East Japan Earthquake. Otherwise, the country has not reported specifically on this goal in the EST Forum process.
Republic of Korea	Republic of Korea has been focused on increasing density around transport corridors since the beginning of the Bangkok 2020 Declaration period. At the 5th EST Forum, Republic of Korea introduced that it sought high-density development near high-speed railway (KTX) stations. In its report to the 6th EST Forum, the country then reported that it is undergoing a paradigm shift to green transport, based on human-friendly, rail, ship and green-cars, with multi-modal connection and restriction of new road investment while focusing on operational efficiency. This concept evolved into Transit-Oriented Corridor development, integrating land use and transport development along transit corridors, and mixed-used and residential use "neighborhood corridors", led by local government. The concept of "Complete Streets" was also discussed, providing more NMT, traffic calming and universal design for accessibility. By the 9th EST Forum, this strategy was largely in place.
Lao PDR	Lao PDR reported on its road network development projects and proposed bus routes during the 6th EST Forum, along with a description of a NAMA on transportation supported by Ministry of Environment – Japan, focused on simulating bus rapid transit routes, and which may have analysed land use and demand along those routes. This focus on transport meeting the demands of density and the current urban form were elaborated at the 7th EST Forum.
Malaysia	Transport-Oriented Development was a goal of the National Green Technology Council, cited during the 5th EST Forum by Malaysia, indicating that this planning practice has been under consideration for many years in the country. In the 7th EST Forum, Malaysia reported that high-density mixed developments had become the trend in developed city areas in Malaysia and that guidelines on housing and commercial developments had been prepared. The specific examples of KL Sentral and Tasek Selatan Integrated Transport Center were presented. During the 9th EST Forum, Malaysia

	presented pedestrian skywalk linkages as a means to achieving greater mixed-use and transport-oriented development. The 10th EST Forum report indicates that policy guidelines for TOD were completed in2014.
Maldives	Due to Maldives' special circumstances as an island nation, density on certain islands is very high, in particular Male and Hulhumale Island, while density on other islands remains very low. Bridges are being constructed to serve as links between areas of high density, along with public transportation and NMT opportunities in those areas.
Mongolia	The 2030 Master Plan outlines a land use zoning plan that includes mixed-use zoning along the main transportation corridors. According to the 10th EST Forum report, Ulaanbaatar has received financing from the ADB to implement a BRT system which will create opportunities for improved integrated planning and higher density, and detailed planning is now underway.
Myanmar	Myanmar has begun to develop the Dawei Deep-sea Port Special Economic Zone but progress is slow and has experienced many delays. Similarly, the Myawady Border Trade and Economic Zone and efforts are under way and other economic zones with economic corridors planned alongside the economic zones (7th EST Forum report). These special economic zones compliment other projects such as the Rehabilitation and Modernization of Yangon-Mandalay Railway Project and Upgrading Yangon-Mandalay Expressway Project that aim to develop mixed use denser populations centers
Nepal	Activity to improve density and mixed-use around corridors has not been actively reported in the EST process until the 10th EST Forum report. To this end, Nepal will: i. Implement Integrated Urban Development Program in 53 Municipalities ii. Implement corridor infrastructure development projects iii. Undertake Secondary Town Integrated Urban Environmental Improvement Projects in three Municipalities (Biratnagar, Birgunj and Butwal) iv. Develop Cities into Smart Cities in 10 years v. Implement Local Infrastructure Development Policy 2005, and vi. Implement the Kathmandu Valley Risk Sensitive Land-Use Plan Implementation of these plans will involve enforcing minimum standards in infrastructure construction and implementation of infrastructure development and service facilities in densely populated areas.
the Philippines	Besides a report in the 6th EST Forum on urban transport programs for highly urbanized cities and the 9th EST Forum on planning around the Cebu Rapid Transit engineering phase, the Philippines has not reported specifically on increased density or mixed-use around transport corridors (8th EST Forum report).
Pakistan	Pakistan presented the use of city master plans and land zoning to increase neighborhood density with main street residential commercial, shopping mall conversions, live-work areas, etc., to achieve mixed-use and medium densities in new communities. Strategic Environmental Assessment for Spatial/Land-Use planning of Islamabad/Pawalpindi as featured, along with master plans in Punjab. BRT in Lahore and construction of the Islamabad Metro were examples of TOD featured in the 8th EST Forum. In its report to the 10th EST Forum, Pakistan reported that in existing corridors of cities that are congested, feeder systems are being developed for enhancing transport access, and that on a national scale, the New China Pakistan economic corridor (CPEC) is being constructed with mixed-use development through land use policies, new cities and industrial estates are being established. Motorways in this project are being constructed on the principle of mixed-use and TOD. Furthermore, Lahore's mass transit system (rail) is under construction.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore has incorporated this goal inside goal number one. There are already six transport oriented developments in operation and this number would double by 2025. (8th EST Forum).

Sri Lanka	Sri Lanka has identified transportation corridors, particularly those serving Colombo and begun to plan transport scenarios around the likely density along those corridors in partnership with JICA. Colombo was divided into zones according to the Zoning Plan 2020 with development goals for each. Furthermore, a western region Megalopolis plan was generated, including 6 LRT corridors and locations for multimodal transport hubs. Implementation is now required.
Thailand	As part of its discussion on land use planning and transport planning integration, Thailand has explored the concept of mixed-use development along key corridors in discussions on poly-centric development and integrated multimodal transport. In particular, Bangkok has had success in building up density around MRT lines and other major transport routes, including that case of Transport-Oriented Development at Phahonyotin transport hub in Bangkok. However, mixed-use development faces challenges due to current planning practices, and little information is known about other cities across the country in this respect. According to the 10th EST Forum report, Thailand had undertaken a study and pilot project on transport connectivity development at Phahonyotin Transportation Hub
Timor-Leste	Access to transport is the priority of Timor-Leste at this time, including improvement of urban roads as well as better connectivity between urban and rural places.
Viet Nam	Viet Nam has focused on metro rail projects in Ha Noi and Ho Chi Minh cities as core to establishing transport-oriented development and mixed-use development. By 2025, Ho Chi Minh City will have 11 metro rail routes, and Ha Noi will have 8, in addition to BRT lines that are under construction.
Goal-3: Institute policies, programmes, and projects supporting Information and Communications Technologies (ICT) as a means to reduce unneeded travel	
Afghanistan	In 2010, Afghanistan reported that it lacked information technology and payments systems that could facilitate the reduction of trips in cities. However, by the time of the 7th EST Forum, the country noted that the use of fax and e-mail were being partially accepted for official purposes, that the government had started to use electronic tendering and electronic financial transactions for government business, and that the use of the internet was gaining momentum, including telephone access to villages, which can avoid the need to travel for communication. During the 8th EST forum, Afghanistan reported that the Clean Air Implementation Plan for some large cities also included strategies to encourage the use of ICT to reduce unneeded travel, although bureaucracy remained a barrier to change.
Bangladesh	Bangladesh has reported fast progress in its implementation of ICT systems that enable a reduction in transportation demand and make public transportation easier to use. Although the country suffers of internet that is too slow to support advanced telecommunications, and technology comes with high up-front costs, the nation has taken the initiative in the following areas: · District e-service center development to offer public services locally and government is operating e-procurement for government purchasing. Video conferencing among government offices is being introduced to reduce government travel · Smart phone and online utility billing and payment and railway ticket purchases to avoid bank and train station trips and online shopping including book and grocery purchase is growing, likely reaching the majority of the population by 2020 · Electronic ticketing for limited bus routes throughout Dhaka and a revived plan for 'Rapid Pass' smart card ticketing to be rolled out with MRT development with redesigned IT system (https://sdasia.co/2017/01/26/smart-card-on-the-way-to-digitize-dhakas-transport/) · RFID number plates for vehicles have been rolled out

Bhutan	Bhutan is quickly scaling up its telecommunication technology across the country. The first agreement on development of a fiber optic network was signed in 2002, and the network officially launched in 2011. By late 2016, all the 205 Gewog offices and 20 districts were connected by fibre optic network, providing information, government services and dialogue, small-scale telemedicine and health consultation, banking and economic opportunities to even the most remote of areas, with internet penetration of more than 46%. Similarly, 3G networks have spread across the country, with more than 85% mobile coverage in the country, allowing people to avoid some long journeys to urban centers for services. A divide still exists between urban and rural areas, and ICT as a substitute for travel remains to be incorporated formally, but great progress has been made thus far. Today, in the interests of improving internet access to the rest of the world, discussions are underway to explore how broadband internet could be imported from Bangladesh via India.
Brunei Darussalam	ICT is an area of focus for Brunei Darussalam as it diversifies from oil as its major industry. The Sultanate launched its National Broadband Policy in November 2014 with the aim of increasing household penetration of broadband to at least 80% by 2017 from 31%, and reduce prices for household high-speed internet to less than 3% of average monthly income by 2016. The Digital Government Strategy 2015-2020 aims to lead the digital transformation and make government services simpler, faster and more accessible. In 2016, the United Nations Public Administration Network noted that Brunei Darussalam's ranking in e-Government initiatives penetration was ranked 83rd out of 193 countries, up three notches from 86 in 2014, and its Online Services Index had improved from 0.3622 to 0.5072 between 2014 and 2016 – a dramatic improvement.
Cambodia	No mentions are made in Cambodia's submissions to the EST Forums with regards to the use of ICT to reduce the need to make unnecessary trips. According to the United Nations E-Government Survey 2016, Cambodia has a very low E-participation index (grouped in the lowest quartile of countries), although its E-Government Development index is considered to be "Middle". Cambodia suffers of very low connectivity rates, including only 10.10 wireless broadband subscriptions per 100 inhabitants, and 0.21 fixed broadband lines per 100 inhabitants. Only 9 percent of individuals use the internet.
P.R. China	Use of ICT to reduce travel in China is becoming more and more commonplace, particularly with the fast advance of high-speed and mobile internet in the country. Nearly 95% of the country's population uses mobile internet, with more than 400 million fixed line broadband users. In addition to website or electronic access to key government services, may government and financial services have been made accessible through mobile applications such as WeChat and AliPay. WeChat on its own claims 846 million monthly active users as of mid-2016, and features services such as bank account-linked payments and transfers, utility payments, bus card recharging (supported on some mobile phones with NFC technology), hospital appointment reservations, tax and social insurance services, and many others. Similar services can be found on AliPay, the application that enables payment for online shopping website, Taobao (an Alibaba sales platform in China). Online shopping has also expanded dramatically, enabling brands, consumers and logistics companies to optimize their locations, warehousing and location of shopping, allowing consumers to purchase any kind of product while not having to make a special trip. While more than 700 million people still have no access to fixed-line broadband, China plans to install 90,000 km of high-speed fiber-optic trunk cables by 2018, expanding broadband coverage to all urban areas and nearly 90% of countryside areas. Meanwhile, detailed online maps of cities including up-to-date public transit route maps (including some real-time bus locations and present and predicted traffic conditions) allow transport users to plan their trips according to their needs. China has also embraced the concept of online car and bicycle reservation. Didi Chuxing allows users to order a taxi on demand, reducing their need to purchase private cars. Didi Chuxing also arranges shared rides that allow riders to defray costs while vastly improving the efficiency of taxi service. Meanwhile, Mobike, ofo, and other shared bike services are multiplying across the country. These bike services do not use fixed shared bike stations. Rather, they use GPS location to allow users to locate a bike parked near them, reserve it, use an online app to unlock the bike, and ride it directly to their final destinations without having to find an open fixed parking spot. While ICT is facilitating mode shift and avoidance of personal trips in P.R. China, working schedules and working culture in China make it difficult to apply telecommuting as a strategy, as noted in P.R. China's submission to the 7th EST forum.

Indonesia	Indonesia has not comprehensively discussed ICT as a means of reducing transport demand in the EST process. However, the country has identified e-government as an important objective. While the country was categorized as a "Middle Online Service Index" Country in the 2016 UN E-Government Survey, the country signed an agreement with the Republic of Korea in 2016 to improve e-government services, and this programme may help to reduce the need to travel for receiving government services. According to the Ministry of Communication and Information Technology Republic of Indonesia's eGovernment Indonesia Update (2015-2019) (Presented in Seoul, 2015), the Indonesian government aims to have optimized its eGovernment system by 2019, including Government-to-Government systems, Government-to-Employee systems, Government-to-Business systems and Government-to-Citizen systems. As of mid-2016, there were 100 million broadband users in Indonesia, achieving 40% penetration, with 93% of them accessing the internet by mobile phone. (http://www.computerweekly.com/news/450288410/Indonesian-internet-users-turn-to-smartphones-to-go-online)
India	India's reports on ICT use in the implementation of EST as an avoid strategy have been limited in the EST Forums. During the 6th EST, India reported that its E-governance program helped to reduce transport demand, and during the 7th EST Forum, it reported that an initiative was underway to create a national common mobility card across India. In the UN E-Government Survey 2016, India ranked 27th in e-participation, and was grouped with other countries in the "Very High" e-participation category. The same report, however, grouped India in the "Middle E-Government Development Index" – the second group out of 4, where higher is better. India launched its "Smart Cities Mission" in 2016 (http://smartcities.gov.in/content/), focusing on better public transport access, information about non-motorized transport zones, parking availability, and other services.
Japan	Japan has not reported specifically on the use of ICT to avoid transport demand through the EST Forum Process. According to the United Nations E-Government Survey 2016, Japan ranks second globally in e-participation rates, and is featured as a world e-government leader with very high E-government developing index ratings. Japan is one of the few Asian countries with open standard datasets being reported.
Republic of Korea	According to the United Nations E-Government Survey 2016, Republic of Korea is a leader in e-government, rolling out programs such as "Government 3.0" which aims at active sharing of data and removing barriers between agencies for collaboration. The Republic of Korea identified 50 smart city projects ongoing at the beginning of 2013. The Republic of Korea ranks 4th globally in e-participation, while ranking third globally for e-government development, and top in Asia. Republic of Korea is one of the few Asian countries with open standards datasets in 5 or more sectors. Republic of Korea reported that IT-based remote working could be useful for traffic management at the 6th EST Forum, and that by making bus and other transport information available through the internet, mode-shifting should be made easier (9th EST Forum report).
Lao PDR	There was no mention of using ICT to reduce transport demand in the reports delivered to the EST Forums. According to the United Nations E-Government Survey 2016, Lao PDR is ranked in the second lowest quartile for e-participation and e-government development. The country sees very low rate of broadband connections at 2.40 wireless broadband connections per 100 people, and 0.16 wired broadband connections per 100 people, but 14.26 percent of individuals use the internet regularly.
Malaysia	Malaysia has explored using ICT to reduce transport needs and to improve transport efficiency and experience. In its report to the 7th EST Forum, Malaysia noted that transport ticketing was available online, and journey planners were also available indicating routes, fares, stops, etc. Malaysia introduced a centralized taxi service system to allow better taxi experience and reduce the use of private cars in cities during the 8th EST Forum. Integrated ticketing systems between different rail operators were reported during the 9th EST forum. Malaysia has not, however, reported on policy encouraging the use of ICT to avoid trips altogether, such as through videoconferencing, telecommuting and other strategies. According to the United Nations E-Government Survey 2016, Malaysia ranks 47th globally in e-participation, and is placed in the second-highest quartile of e-participation as well as e-government development. 67.5% of individuals use the internet regularly in Malaysia, with 10.14 wired broadband subscriptions per 100 persons, and 14.1 wireless broadband connections per 100 persons.

Maldives	While ICT has not been a major push for EST in Maldives, the country has sought to integrate information systems to reduce unwanted travel and make trips more useful. Electronic ticketing and mobile phone-based information and reservation systems were discussed at the 6th EST Forum, but the outcome is unclear. The UN Public Administration Programme 2016 meeting noted that Maldives is ranked in the top third of small island developing nations for e-government implementation, although it was not clear if these practices were relieving the need for transportation in Maldives. (E-Government for G2E Development in Small Island Developing Countries, Presented at the ITU REF-ADP 2016)
Mongolia	There are plans to develop a "Traffic Rational System" that includes a CCTV monitoring, video sensors to detect traffic movement, and variable message boards (VMS) to display road condition information. Road users can also consult a road user website that can provide real time information, allowing them to properly plan their journey. (8th EST) As of the writing of this report, there is no evidence that suggests such a system exists except for a network of police monitored CCTV cameras. It is unclear if the CCTV network data is also used in transport analysis. Mongolia reports is has developed several policies and projects to reduce unneeded travel: · A Government public contact center, called 11-11 (hotline) provides feedback and information to the Government service information and complaints from citizens. · Government-organized teleconferencing every month, covering all provincial Governors and organizations. · A Citizens service center, called "Single window" provides several citizens services at once to helping reducing time and travel. (7th EST country report) - Electronic ticketing system is coming into place to sell international and intercity bus, train and air tickets (10th EST Forum report) Mongolia has included a plan to "increase the accessibility of wireless internet, enable its usage in recreation and camping areas, and libraries" in their 2016-2020 Action Program and in rural areas as part of the 2013 ICT goals which would lead to more capacity for telecommuting and communications. From 2012 to 2013 internet subscribers increased over 40%.
Myanmar	According to the United Nations E-Government Survey 2016, Myanmar ranks in the lowest quartile for online service, and e-government development. The country suffers of very low connectivity, with only 2.1% of individuals using the internet regularly, 0.27 fixed broadband connections per 100 individuals and 1 wireless broadband connection per 100 individuals. According to the 7th EST Forum report, residents experience improved access to the internet and mobile phones.
Nepal	Until the 10th EST Forum, Nepal did not report on the use of ICT to reduce the need for travel. The Report to the 10th EST Forum indicates that telephone providers have emerged, that all village development committees are connected via telephone services, that telephone density has reached 81.72 percent and there are 7.1 million internet users. The country aims to increase internet coverage to 65% by 2018/19, roll-out of broadband and fiber optic network worldwide, and for satellite service to be enabled. E-governance is also being planned. During the 9th EST Forum, it was reported that Nepal is seeing the private-sector development of carpooling in the country using mobile phone technology for finding rides. The system helps to avoid personal car use, and improve the utility of fuel burned in vehicles, especially during the fuel crisis in the country, and research suggests that ride-sharing reduced the number of private vehicles on the road by 7000+ during peak time. The United Nations E-Government Survey 2016 indicates that Nepal has improved from a low E-Government Development Index (EDGI) country to a Middle EDGI country, and that e-participation ranks relatively high compared to many countries globally.

the Philippines	The Philippines has only reported on use of ICT as a means of avoiding transport in the 10th EST Forum. Yet, there is progress reported. Telecommuting and teleclasses and online services for government services, banking, payment and other commerce are encouraged. The Department of Information and Communications Technology has drafted an executive order for the use of telecommuting and other ICT-based tools to help in traffic de-congestion. The government has built an e-Government solution which will serve as a national government portal one-stop-shop for online services such as passport and birth certificate application and tax filing. Finally, the Climate Change Commission is developing an IT system that will provide climate information in a way that is meaningful to users. According to the United Nations E-Government Survey 2016, the Philippines is one of the few Asian countries reporting open standards datasets in 5 or more government sectors, open mapping has become an invaluable tool for transportation system mapping and disaster response. As a result of these and other efforts, the Philippines made a leap from mid-performing e-government nations to high-performing e-government nations.
Pakistan	According to the United Nations E-Government Survey 2016, Pakistan is ranked in the second-lowest quartile for online service index and e-government development index. Yet, it is one of the few Asian countries that makes open standard datasets available in 5 or more categories of government. 13.8% of Pakistan individuals use the internet regularly, with 1.08 fixed broadband subscriptions per 100 inhabitants, and 0.8 wireless broadband subscriptions per 100 inhabitants. During the 8th EST Forum, Pakistan reported that cell-phones were used across the country, and that 3G/4G wireless broadband was recently introduced. By the time of the 10th EST Forum, Pakistan reports that the e-government project initiated 10 years previous was highly successful. Web-based taxi services were also available in some cities of Pakistan. Pakistan would focus on the development of the legal regime moving forward to ensure that modern transportation services can be facilitated by government.
Russian Federation	According to the United Nations E-Government Survey 2016, Russia is ranked 34 in e-participation globally, and is in the top quartile of e-participation. The report featured social media applications in Russian government websites as a useful tool. Russia is ranked in the 2nd highest quartile for e-government development. In the Russian Federation, 70.52% of individuals use the internet with 60.2 wireless broadband connections per 100 inhabitants and 17.45 fixed broadband connections per 100 individuals.
Singapore	By the time of the 10th EST forum, the Government of Singapore had not reported taking any action on this goal. According to the United Nations E-Government Survey 2016, Singapore is ranked 8th in e-participation globally, along with Canada, Italy and Finland. The country is featured for making data available to residents and encouraging visualization of data by the public. Singapore is ranked 4th globally for E-government development, and second in Asia after the Republic of Korea.
Sri Lanka	According to the United Nations E-Government Survey 2016, Sri Lanka is ranked 50th in e-participation globally, in the second-highest quartile of countries. The country is also in the second-highest quartile in terms of e-Government development, ranking 79th. In Sri Lanka, 25.8% of individuals use the internet regularly, there are 7.8 wireless broadband connections per 100 individuals, and 2.65 fixed broadband lines per 100 individuals. Sri Lanka has made many efforts in implementing ICT for transportation purposes. The country e-service portal and mobile banking allow people to avoid trips altogether, while the transport sector allows for automated seat booking to promote public transport convenience (7th EST Forum report). Sri Lanka's report to the 9th EST Forum added that free Wi-Fi zones were available in public places. Prepaid card systems for public transport systems were being explored as noted in the 10th EST Forum report.
Thailand	Thailand is a high-ranking country on the "Online Services Index" (OSI). In the 2016 UNPAN E-government survey report, Thailand was grouped in the "High OSI" countries, and graduated from the "Middle" E-Government Development Index countries in 2014, to "High" in 2016, ranking 77th globally. Thailand has very high adoption of mobile telephone subscriptions (144.44/100 inhabitants), and broadband (fixed: 8.21/100 inhabitants; wireless: 52.5/100 inhabitants) making e-government and e-transactions accessible to many people. Thailand also plans to launch a national e-payment system in Thailand, thus reducing the need to travel to pay cash for services and products. In 2016, Thailand also created its Ministry of Digital Economy and Society, which shall make further advances in the areas of accessibility and services in ICT.

Timor-Leste	According to the United Nations E-Government Survey 2016, Timor-Leste is ranked in the second-lowest quartile of e-participation globally, and in the lowest quartile for online service index, while being ranked in the second-lowest quartile for e-Government development. The country is featured in the report as a least developed country that has seen significant gains in e-government 2003-2016. In Timor-Leste, 1.14% of individuals regularly use the internet, with 0.6 wireless broadband and 0.07 wired broadband subscriptions per 100 people, respectively, in use. In its report to the 10th EST Forum, Timor-Leste reported that it would initiate fiber telecommunications with the ambition to connect people to people, improve and promote e-administration, e-government and e-business to reduce unnecessary travel.
Viet Nam	Although the Viet Nam has invested in e-services, and is gaining recognition from UN agencies such as UN Public Administration Network for improved e-services, the use of ICT as a means of reducing transport demand has not been a heavy focus for the country. As of the 9th EST forum, there were still concerns of a lack of human resources with good skills and knowledge in ICT, as well as a lack of policies and standards to apply ICT. According to the United Nations E-Government Survey 2016, Viet Nam ranks 43rd globally, tied with Bulgaria and Luxemburg in e-participation, and 89th for e-government development.
Goal-4: Require Non-Motorized Transport (NMT) components in transport master plans	
Afghanistan	Afghanistan's cities suffer from very narrow roadways with mixed and improper use by vehicles and pedestrians. The country has aimed to improve conditions for pedestrians by upgrading road surfaces, but by the 9th EST period, still reported that the country suffered from low and old road network infrastructure, limited space around main roads, and a lack of strong urban land use policies. During the 7th EST forum, it was reported that little attention is paid to the NMT system mainly due to security issues.
Bangladesh	Many roads in Bangladesh are narrow and land constraints often limit the provision of separate NMT lanes, resulting in chaotic traffic and difficult trips for all road users. Furthermore, as Bangladesh develops, more and more heavier vehicles are starting to use roads than originally planned. Yet, 50% of Dhaka residents commute using the NMT system. While challenges are abundant, the country has finalized a National Integrated Multimodal Transport Policy with an emphasis on NMT and design standards with NMT provisions are in place. Many roads have footpaths and over-bridges for pedestrian crossing, and some sections of national highways have separate lanes for slow-moving vehicles including NMTs. Finally, intermodal facilities at major bus terminals have been introduced. By 2020, Bangladesh seeks to install bicycle lanes in selected urban areas, NMT lanes on all upgraded national highways, and a multimodal hub at Hazrat Shah Jalal international airport. The City of Sylhet reported during the 8th EST Forum that it had constructed separate roadways for rickshaws and that planning for pedestrians and other non-motorized modes was its priority. During the 10th EST Forum, Bangladesh reported that there were improvements to pedestrian and bicycle facilities in all major urban areas.
Bhutan	As cars become more popular in Bhutan, awareness is starting to be raised about the importance of reserving space for non-motorized transport. In Bhutan's Transport 2040 Integrated Strategic Vision, pedestrianization is one focus of development in Thimphu. Although the country's geography and dispersed population does not lend itself to NMT, it is slowly picking up with awareness-raising efforts. Bhutan reported that it had installed user-friendly pedestrian crossings with strict monitoring to reduce hit and run cases in its report to the 10th EST Forum.
Brunei Darussalam	The National Land Transport White Paper 2014 noted that non-motorized transport is at a very low baseline in Brunei Darussalam. The paper notes that NMT is essential for accessing and extending the catchment area of the planned enhanced public transport network, and is key to creating a safer, sustainable, inclusive society. At the 7th EST Forum, it was reported that provision of bicycle lanes in national housing areas and parks as well as footpaths at commercial and housing areas was already underway. There is little information available regarding enhanced implementation at present.
Cambodia	In its report to the 5th EST Forum, Cambodia expressed that road networks were increasing capacity, but at the expense of NMV transportation. The report also noted that no cycle-tracks and sidewalk networks were available at the time, indicating a need to make space for them in transport planning. Subsequent reports did not discuss NMT in depth.

P.R. China	Although the expansion of car-based road traffic has widely displaced traditional non-motorized modes of transport in P.R. China, cities are starting to recognize the benefits that NMT bring in terms of traffic and emission reduction. Many cities across China have installed bike-share programs that allow users to use bicycles for free or at very low cost for short periods of time. Private-sector bike share systems have also evolved, such as Mobike, ofo and others that offer similar services, but without the cost of fixed bicycle parking stands. Many cities in China, with Beijing as a prime example, plan for bicycle lanes on almost all roads. These bike lanes, however, still require major efforts to ensure that cars do not park in them and displace cyclists. Similarly, sidewalks are often installed but blocked by cars or by commercial enterprises using the public space for their business purposes. The State Council of China recently recognized that China's "superblock" and gated community style of urban planning is presenting major roadblocks to NMT and efficient use of transportation space, and recently recommended that these communities be opened up. However, there has been widespread opposition to this recommendation from residents of gated communities.
Indonesia	Beginning at the 6th EST Forum, Indonesia began reporting that NMT was a key program for supporting EST, with the strategies of pedestrian facility development, bike lanes, car free days and public transport days. During the 7th EST Forum, Indonesia reported that its National Action Plan for GHG Emission Reduction (a Unilateral NAMA) would include non-motorized transport development as a measure. By the 9th EST, Indonesia was reporting that bicycle facilities had been constructed in Surabaya (over 60km of track), and Batam (over 78km of track) had been built, and pedestrian facilities had been built in Surakara, Tangerang, Batam and South Tangerang. Car-free days have been implemented in 21 cities in Indonesia (10th EST Forum report).
India	India is promoting cycling in Indian cities through a public bike sharing scheme. The country reported during the 7th EST Forum that NMT infrastructure was inadequate and NMT use was decreasing, and therefore was developing a national cycling policy, a toolkit for public bicycle scheme projects, project design and specifications for public bike schemes, and proposed financing mechanisms. A new scheme was promoted in 2013-14 to promote public bike systems with 100% funding from Government of India for pilot cities. India's National Mission for Sustainable Habitat has listed walking and cycling as key to sustainable transportation, and the National Urban Transport Policy has clearly stated that NMT should play a key role in last-mile connectivity. As part of the Smart Cities Mission, Chennai became the first city to implement an NMT policy in India. (https://roofandfloor.com/realty-guide/10-smart-solutions-citizens-can-expect-from-indias-20-smart-cities/)
Japan	Japan introduced the concept of bicycle sharing in its report to the 5th EST Forum, describing its unattended, IC-card enabled bike share system and pilots across Japan, featuring roll-out in Toyama City, where a monthly fee was charged, as well as a time-based fee for usage times over than 30 minutes per use. Japan also encourages environmentally-aware private companies to promote to their employees to ride bicycles to work, especially for short trips. During the 8th EST Forum, Japan described its efforts to improve and maintain bicycle parking areas and facilities, support for community cycling projects, formulation of Guidelines for Creating a Safe and Comfortable Bicycle-Use Environment, and Formulation of a bicycle network maintenance plan and support for maintenance of cycle lanes. Upgrades to public transport facilities were also featured to demonstrate better transfer from cycles. During the 9th EST Forum, Japan featured more examples of upgraded transport nodes to facilitate NMT and multi-modal transportation. The 10th EST Forum report featured a newly revised "Guideline for Creating a Safe & Comfortable Bicycle-Use Environment" by the Ministry of Land, Infrastructure, Transport and the National Police Agency, which supports the organizing program for bicycle network planning and maintaining open space for bicycle running.

Republic of Korea	NMT is a major component of Republic of Korea's integrated transport and land-use planning approach. During the 5th EST Forum, it reported that it would provide more pedestrian priority zones, where traffic calming measures, low traffic speeds (30km/h) and parking prohibitions are put in place, as well as a "Pedestrian Day". The country planned to extend its bicycle network to 3,114km by 2018, ensure enough road space for bicycles, install bicycle racks on trains and buses and promote public bikes and bike-sharing. At the 6th EST Forum, Republic of Korea introduced biking and walking as one of its five major tasks to achieve green transport, ensuring smooth transitions between bicycles and public transport and the construction of a safe bike path network. The report to the 7th EST forum featured the concept of "Complete Streets" that can be used safely and conveniently by all users. Seoul was featured with its vision for a "Pedestrian-friendly City", featuring more sidewalks, pedestrian priority areas, universal design, traffic calming measures, more crosswalks, and better policy integration. Seoul aimed to expand the mode share of bicycles from 1.2% in 2007 to 5% in 2013 and 10% in 2020, and to construct better bicycle parking systems. The country established 10 pilot cities for biking and enacted Pedestrian Laws to promote project for the convenience of pedestrians. It seemed these strategies were mostly in place by the time of the 9th EST Forum.
Lao PDR	Lao PDR reported that NMT is part of its EST strategy during the 6th and 7th EST Forums, and had received support in the form of Technical Assistance from the ADB to work on NMT, including capacity building in NMT planning, Preliminary design for NMT implementation, and funding for NMT implementation. Subsequent reports did not elaborate on this plan.
Malaysia	The promotion of an NMT has been a core initiative of Malaysia since the 5th EST forum when it reported that non-motorized transport is a theme of the National Green Technology Council. During the 7th EST Forum, Malaysia had formulated an initiative on construction of bike lanes in housing schemes and city center areas, and featured covered pedestrian walkways between commercial areas and rail stations in Kuala Lumpur. During the 9th EST Forum, Malaysia introduced the Putrajaya Structure Plan (Sustainable Putrajaya 2025) and Putrajaya Green City 2025 plans as examples of NMT integration, and elaborated in the report to the 10th EST Forum, noting that these plans encourage cycling and walking as the preferred transport options. Malaysia also reported that it had initiated a "Kuala Lumpur Car Free Morning" Campaign to encourage NMT.
Maldives	Although vehicle ownership – cars, motorcycles and logistics vehicles – has increased rapidly since the 5th EST Forum – especially in the Capital city, NMT remains the predominant mode of transportation on land. The Master Plan for Hulhumale Island, a newly reclaimed island under development, includes pedestrian-friendly roads and dedicated bicycle lanes.
Mongolia	The 2030 General Development Plan includes "capacity for pedestrian walkways, environmentally friendly transport vehicles, infrastructure of accommodate bikes and road networks which separate road users from bike users and pedestrians." In 2014, work was planned for the first stage of the UB Bikes Project (8th EST). Implementation of the "Street" and "Bicycle road" sub-programs appear in the 2016-2020 general plan suggesting that this program is still in the middle of the implementation stage. As of the writing of this report there is no evidence that a public bicycle program or bicycle lanes are open to the public, but a standard for bicycle roads was developed, and a national standard for pedestrian sidewalks was completed (10th EST Forum Report)
Myanmar	Bicycles and trishaws are used in the suburbs of Yangon, Mandalay and other major cities, all country sides. There are two days per month to reduce the use of departmental vehicles and Yangon city has adopted motorcycle-free zones in the city's urban zones. (7th EST) Plans include construction of separate roads for bicycles in Mandalay City, Construction of separate roads and overbridges for pedestrians in Yangon City, Mandalay City and Nay Pyi Taw City (9th EST Forum Report)
Nepal	Nepal's first report during the Bangkok 2020 Declaration period (5th EST Forum) on NMT was about pedestrianization of historical areas in Kathmandu, in the context where the report also stated that NMT was "non-existent". By the 6th EST Forum, it was reported that a cycle lane was planned, and pedestrianization of historical areas was still planned. By the 8th EST Forum, Nepal noted that provision of cycling lanes along intra-urban roads was part of its National Urban Development Strategy, 2014, and walkability was described as part of the Kathmandu Sustainable Urban Transport Project. The project reported that walkability has improved with completion of 15km of sidewalk and 4 km of pedestrian walkway along with 2 pedestrian bridges under construction (27 Feb 2017: https://www.adb.org/printpdf/projects/44058-013/main).

the Philippines	The Philippines has reported annually on NMT integration in the country. The 5th EST Forum saw reports on pedestrian and bicycle ways in Marikina, with NMT-friendly cities being described in Makati, Marikina and Quezon City. The 7th EST Forum report discussed Bike-on Bike-off service for LRT in Metro Manila, and a bikeway and walkway program was underway in Metro Manila close to major transport terminals and other urban facilities. The 8th EST Forum report described the development of a highly visible demonstration corridor intended to improve pedestrian mobility in the Ortigas and Mandaluyong Greenways, and overall better publicizing of benefits and viability of bicycles as alternative transport in Metro Manila to be adopted elsewhere in the Philippines and even other countries. The Ortigas Greenway was listed as fully completed by the time of the 9th EST forum, although the 10th EST Forum report noted that engineering work was still underway and that implementation would be estimated to begin in the second quarter of 2017. A bike-sharing project will be promoted in Metro Manila in 2017, family zones around points of interests based on heritage, history or activity are being developed, an elevated walkway was constructed at a length of 1.5 km (to be expanded to 30 km) in Makati, and the Tutubi Bike Program is being installed in the City of Pasig.
Pakistan	Pakistan's report to the 5th EST Forum mentioned that despite extreme weather conditions and "undulating topography", continuous walkways along major roads and safe intersections are important for moving towards EST. The report to the 7th EST Forum focused on bicycles as an integral part of conveyance, especially for economically disadvantaged people, and they needed to be included. Starting with the 8th EST Forum report, Pakistan noted that all new planned housing schemes would have footpath networks. By the 10th EST Forum, Pakistan reported that cycle lanes were beginning to be provided in Islamabad, and policy would be adopted to provide pedestrian facilities along all urban roads.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	At least as early as the 5th EST forum, Singapore had integrated non-motorized transport into its transport mobility planning. The country reported allowing foldable bicycles on MRT and bus, Bicycle parking facilities at public transport hubs, cycling lanes, safety signs, and seven cycling towns. At the 8th EST forum, that it had completed its national cycling plan, bringing cycling paths to all public housing towns by 2030, and promoting cyclist education. A network of 700 km of track should be completed by 2030. Singapore also introduced its Walk2Ride program. This program includes shelter walkways built into the trip generating developments within a 400 m radius of MRT stations and 200 m of bus interchanges and light rail stations. These two programs are included in the Land Transport Master Plan 2013. Singapore reported he much more aggressive non-motorized transport approach at the 10th EST forum. In addition to the national cycling plan, an automated mechanized bicycle parking system is to be installed in 2017; A bike sharing system is being piloted and is expected to be ready in 2018; A Walking and Cycling Plan was launched in July 2016, aiming to ensure that new developments consider the needs of pedestrians and cyclists at the upfront stage of the design; A Road Typology Review was conducted to balance of benefits and promote safety among the road users; an active mobility bill was passed in early 2017 establishing a regulatory regime to govern the types of devices permitted on public paths such as footpaths, cycling and shed paths; a publicity campaign and public education campaign was launched to educate the public on new rules, code of conduct, and penalties; and, a car free program is supported by a number of community and interest groups to promote a car-light message and enliven the streets.
Sri Lanka	Sri Lanka has relied on NMT for many years, yet even before the Bangkok 2020 Declaration, it had been promoting NMT modes for school children in the Eastern province, and "Vehicle Free Da" at Matale, Central Province (5th EST Forum Report). The country reported increased walkways and dedicated cycle lanes in main cities, at the 7th EST Forum and noted bicycle distribution to school children. The country reported a success in walkability at the 9th EST Forum, noting a vast improvement by providing foot paths with proper safety and quality, as well as trees along walkways to provide shade, and intersection improvement. Bike lanes were reported, but were observed to be used only for recreation.

Thailand	At the 7th EST Forum, Bangkok reported that it had taken some initiatives to create an NMT environment in the city. Bicycle facilities are available in some areas of Bangkok including shared public bicycles at some BTS stations, primarily aimed at tourists. As of the 9th EST Forum, Thailand reported that it would undertake a Non-Motorized Transport project (Nov 2013 – end of August 2014) that would undertake 3 pilot projects in the BMR, 1 pilot "bicycle town", and monitor energy consumption reduction and GHG emission reduction. This project was supported by the National Health Assembly and the Cabinet. In some cases, NMT faced challenges due to safety issues. As of the 10th EST Forum report, Thailand noted that the country has 566 km of bike lanes across the country, and NMT policies are to be included in master plans in all major cities across the country.
Timor-Leste	There is not yet anything to report for this goal.
Viet Nam	Between 1994 and 2005, the proportion of NMT trips in Ha Noi city had declined while transport by other modes had increased considerably. By 2014, Viet Nam was implementing minimum width of pedestrian pavements along each side of roads, with initial plans to pedestrianize certain roads. Furthermore, public bike rental services were to be launched in 5 cities in 2015, and in master plans, cycling routes had been defined to attract people to ride bicycles. Regional or higher grade roads are required to have bike lanes. (ASEAN-German Technical Cooperation – Energy Efficiency and Climate Change Mitigation in the Land Transport Sector, 2015)
Goal-5: Improve public transport services	
Afghanistan	Development of public transportation systems in Afghanistan has been a challenge. In 2010, Afghanistan reported that there was very poor public transit in its cities. However, by the 8th EST forum, the country noted that the Kabul Urban Transport Efficiency Improvement Project was being developed to be implemented with World Bank support, including a component for road improvements and transport efficiency including promoting public transport and connecting feeder services to residential communities. By 2015, Afghanistan mentioned that it faced financial challenges in implementation. But in its report to the 10th EST Forum, it noted that the private sector was being engaged to provide some urban mass transport services.
Bangladesh	Dhaka is heavily focused on developing its public transport system. Although traditional public transit operators are resisting change, and improved public transport is often hampered by constraints in built-up areas, two mass transit projects, including BRT Line-3 and Mass Rapid Transit MRT-6 are under construction, and aim to be completed within five years. Feasibility studies for another two MRT lines are underway, but no progress has been reported, and high-occupancy buses have been added to Dhaka's fleet. Reform of the bus sector and begging of construction of the MRT-1 are expected by 2020. The City of Sylhet has made efforts to plan a public transport system around the city outskirts to allow for easier cross-city transport, but required private investment at the time of reporting at the 8th EST Forum.
Bhutan	Public transportation has played an important role in Bhutan's urban areas and has been upgraded during the period of the Bangkok 2020 Declaration. All the twenty districts and some blocks are connected by public transport, and the frequency of urban public transport is increasing steadily. In 2010, urban transport services in Thimphu were expanded with old buses being replaced by 12 more modern and comfortable Toyota coaster buses, and 2 buses were introduced in Phuentsholing. Since the 6th EST forum, Bhutan had reported the exploration of BRT or even LRT projects, but they have been deferred due to the high costs of buses and trains, especially compared to the low population density of the country. Meanwhile, a pre-BRT system has been researched for Thimphu City that would see 9 diesel buses (to be converted to hybrid-electric in the future) operating through the city every 10 minutes. Bhutan is also exploring upgrading taxi services from conventional cars to electric vehicles as a means of reducing their pollutant emissions. During the 10th EST Forum period, buses have been procured through government funding, three private bus operators have been engaged, and a pre-feasibility study for LRT has been completed with assistance of UNDESA/UNCRD

Brunei Darussalam	At the 7th EST Forum, it was reported that Brunei has introduced park and ride facilities for facilitating residents to use public transport at the Brunei National Hospital. Bus stop facilities had been improved to be sheltered, and more were installed, and a new central bus station and bus terminal were under construction in 2013. In 2014, it was reported that there were only 105 buses operating in the country and a very small number of taxis as public transportation, when Bus Rapid Transit was identified as optimal for the Sultanate above MRT and LRT. Under government plans, the current bus network will be expanded to create a feeder system to support the new sections of the BRT system, which itself will be made up of four bus lines. The total network is expected to span 48 km of bus lanes across the Brunei-Muara district. Approximately 126 BRT buses will make 29,000 trips during peak morning hours and 228,000 journeys per day. The first line is scheduled to open in 2020, while completion of the network is expected by 2035. School traffic is responsible for almost 1/5 of motorized road traffic in Brunei, contributing to peak hour congestion. The National Transport Plan proposes improvement of public transport, an expanded national school bus system, promotion of walking and cycling, education and training of parents, staff and children, and other efforts to decrease reliance on personal cars for school commuting.
Cambodia	Cambodia reported a shortage of properly managed pubic transport in the country at the 5th EST forum. The country faced a poorly managed traffic network, absence of buses, no LRT/MRT and long-distance public transit was privately operated. The country identified re-introduction of bus services and a study on mass transit alternatives as priorities at the 6th EST Forum, and the introduction of buses was realized and reported at the 8th EST Forum, with 10 buses operating at 36 stops.
P.R. China	Public transport in the larger cities of the P.R. China is well developed. Many larger cities have upgraded public transit from an informal industry to bus and metro services with fixed routes and schedules. Beijing city has the objective of ensuring inner-city residents need to walk no longer than 10 minutes to access a subway station, and are rapidly expanding the subway system to become what is now the longest in the world. Likewise, MRT systems are expanding in cities across the country, including BRT systems, subway and elevated/LRT systems and bus networks. China has implemented a large number of electronic public transit card systems which, in some cities, are even inter-connected for convenient use of frequent travelers.
Indonesia	Public transport development is a key piece of Indonesia's EST strategy. Even before the Bangkok 2020 Declaration, Indonesia reported planning and construction for BRT in 7 cities besides Jakarta. During the 6th EST Forum, it was reported that 14 cities had implemented a transit system in Indonesia. At the 9th EST Forum, it was reported that Jakarta had begun operating the Transjakarta Busway, connected with feeder services, and was undertaking train facility improvement to ensure safety, cleanliness, comfort, efficient ticketing, and special wagons for female passengers. Public transit has been enshrined in the country's National EST Strategy and as part of the National Action Plan for GHG Emission Reduction. Jakarta is currently building a mass rapid transit system, which will have the capacity to carry about 400,000 passengers per day, and Jakarta aims to have 60% of people using public transit by 2029. (http://asia.nikkei.com/Politics-Economy/Economy/Skepticism-clouds-Jakarta-s-car-congestion-fix). According to a July 2016 report by the KPPIP, Indonesia now aims to develop BRT in 29 cities and MRT in 6 metropolises and 17 large cities. (Wahyu Utomo and Ranier Haryanto, 15 July 2016), and according to Indonesia's report to the 10th EST Forum, 19 cities outside Greater Jakarta have implemented BRT systems.
India	India has reported many improvements to public transport in the country. During the 6th EST Forum, India reported that 21 BRT projects were underway, including purchase of 15260 buses in 61 cities. The National Mission for Sustainable Habitat focused on ensuring high quality transit, and the Jawaharlal Nehru National Urban Renewal Mission aimed to set up a Unified Mass Transit Authority (UMTA) as well as city-specific Special Purpose Vehicles for managing public transport. The Mission also emphasized bus prioritization at intersections and dedicated lanes for buses. Standard Service Level Benchmarks have been established for public transport facilities. During the 7th EST Forum, India reported that it aimed to replicate the metro experience on urban buses. Buses were being standardized, and 14,000 buses were on the road, with 500 more cities to be covered by public transit in 2013-2014. Metro railway was also described. Delhi, and Bangalore had operational metro systems, while Mumbai, Kolkata, Chennai,

	Hyderabad, Jaipur and Cochin all had proposals underway. During the 8th EST Forum, India reported that rural areas were a focus of public transport, and policies were being rolled out to address this issue.
Japan	Japan is a world leader in public transportation, and this leadership has developed over time. However, its development was aggressive even before the Bangkok 2020 Declaration. Yet at the 5th EST Forum, Japan noted that private car use was at an all-time high, and restoration of public transit was needed in order to maintain transport linkages, promote sightseeing and manage environmental issues. The report featured comprehensive coordination of local railroads, BRT, Bus, LRD and improved transfers. The report also emphasized "Realizing 'a city where convenience of walking is effectively utilized' by properly dividing the roles of various transportation methods including walking, cycling, vehicles and public transport". Toyama City saw increases of users by 2.1 times on weekdays and 3.8 times on weekends by improving tram tracks and creating Japan's first full-scale LRT. The 6th EST Forum report featured upgrades to public transit interchanges. Standardization and Interoperability of public transit IC cards was reported on at the 7th EST Forum, and at the 9th EST Forum, Japan communicated the goal of using public transport vehicles to promote low GHG emission vehicles (even lower than privately-owned vehicles) while improving convenience, reconstruction and expansion of the network.
Republic of Korea	Republic of Korea reported at the 5th EST Forum that it had a target to shift 55% of trips to public transport by 2012. The strategies it reported at that time included better intermodal transfer, introduction of light rail transit, and improvement of buses including BRT introduction and interoperability of transport cards – the "One Card All Pass". The government also introduced the concept of the "Public Transport Only Zone". The plan for public transport was expanded at the 6th EST Forum, noting that urban rail would be expanded to 1,054km by 2012, and that bus services would be improved, including construction of bus transfer system in service areas on expressways, and expansion in the use of BRT in major cities and the Seoul Metropolitan Area. Republic of Korea introduced the concept of "Transit Malls" during the 7th EST Forum, in the cities of Daegu, Seoul and Busan, which expand sidewalk space and limit traffic to public transit vehicles only. Seoul established a master plan for the dedicated districts of public transportation and operated a pilot project. Republic of Korea's report to the 9th EST took a more aggressive approach, with the theme, "Make Drivers Uncomfortable, Passengers Comfortable". The report noted that public transit services were still not adequate for demand, leaving people standing on buses (which is illegal on Republic of Korea highways). The country committed to diversion of bus passengers to rail, simplification of bus routes, construction of regional transfer centers, providing bus information online, operating double-deck buses along some busy routes, establish a control tower, and rationalize fares.
Lao PDR	Lao PDR has put attention on public transport since the 5th EST Forum. An Urban Transportation Master Plan with public transit improvements was implemented, including bus routes, park and ride car parks, small, comfortable and energy-efficient buses, and a commitment to have two bus routes within 150 meters of any point in the core area with buses running every 5-6 minutes. JICA has supported implementation of the Urban Transport Master Plan through support to procure 42 "45 seat" buses, and three years of technical cooperation. The Vientiane Sustainable Urban Transport Project (2014-2020) was funded, and a pilot e-Tuktuk transport project in Luangprabang was featured in its presentations.

Malaysia	Malaysia had developed numerous plans for public transport before the 5th EST Forum. It reported that the Tenth Malaysia Plan (2011-2015) featured developing a Rakyat-Centric Public Transport System and implementation of the clean air action plan, and public transportation was featured in the National Automotive Policy, National Green Technology Council, Promotion of Public Transport and National Key Results Areas. Integrated transport terminals, LRT lines, and train services were all featured, and a goal to increase modal share for public transport from 12% to 25% by 2012 was stated, based on initiatives to install Bus Right of Ways, increased coverage, improved rail capacity, improved integration and intermodal facilities, etc. A target to improve accessibility such that 75% of population would live within 400m of a public transport route was described during the 6th EST Forum, and bus improvements including integrated smart ticketing and performance standard monitoring were introduced. The 7th EST Forum report featured drop and ride facilities, electronic journey planners, a centralized taxi service system and an integrated cashless payment system. The 9th and 10th EST Forum reports saw extensions of these concepts – a public transport program largely in place. Yet the country still faces challenges achieving its targeted mode share of 25%, meaning that more work will need to be done. (http://gtp.pemandu.gov.my/gtp/Improving_Urban_Public_Transport-@-GTP_2@0_Improving_Urban_Public_ Transport.aspx)
Maldives	The bridge network connecting the Capital Island, Airport and Hulhumale Island will have public transport network provisions included, and public bus service will be developed for Hulhumale Island. Other islands, such as Villingili Island, where there are few private vehicles, make use of electric taxis, as reported at the 9th EST Forum. Public transport has primarily taken the form of ferries, which connect the islands. A series of national provincial and atoll ferries allow residents to travel between islands when necessary. At the 9th EST Forum, the Addu City Atoll was reported to be developing a road and bridge network connecting its four main islands, and a bus network to connect ferry terminals.
Mongolia	Bus According to the 2030 Master Plan, a public transport system will be developed including a Bus Rapid Transit (BRT) system including the refurbishment of existing buses and the addition of new routes. Further details of this plan include introduction of GPS technology, increasing number of electric vehicles and launching “huge capacity” public transport in Ulaanbaatar (6th EST) 2012-2020 a $169M project to build special road autobus service, improve road mobility management, electronic ticket and bus registration (6th EST) (7th EST country report) In the period 2008-2010 Mongolia launched a 1,5B turug project to assemble vehicles domestically. They reported assembling 15 busses, 11 trolley busses, 1 duo bus. In 2008-2011 32 electric transport vehicles were assembled domestically. A goal of 400 busses was set in 2009. (6th EST) A BRT system has now received financing from the ADB and detailed planning is underway (10th EST Forum). Rail Light rail transit was considered to operate on existing railways in Ulaanbaatar City and connect satellite towns. In the long term, this route will be upgraded to a LRT Metro system. The LRT Metro system slated to be completed by 2020 was postponed in 2015.

Myanmar	Yangon BRT launched in February 2016 (http://yangonbuspubliccompany.com) that includes a pre-paid card that is bought from an employee on the bus. Public transportation projects include: • Yangon-Mandalay Railway Rehabilitation and Modernization Project • Comprehensive Development Project for Yangon Central Railway Station Area • Upgrading Yangon-Nay Pyi Taw- Mandalay highway • Tram services in Yangon CBD area • Fees exemption for public transport buses and city buses • Bus with a high level of Service (BHLS) • Bus Rapid Transit (BRT) (9th EST Forum report) • Construct inter-city transport system from cities (Yangon, Mandalay, Nay Pyi Taw) to the other Regions and States with new passenger buses. (9th EST)
Nepal	During the 5th EST Forum, Nepal noted that its public transportation system was disorganized and primarily owned and operated by the private sector. At the same time, it mentioned that old vehicles were being replaced, and public transport vehicles were being replaced with low or zero emission vehicles, funded by the GEF. The Kathmandu Sustainable Urban Transport program supported two pilot routes for public transport, as well as the rationalization of public transport. At the 7th EST forum, Nepal reported progress in organizing public transport, and that one public transport route had been selected as a result of GEF piloting. A study for an elevated transport system in Kathmandu was completed, and Sajha Transport was reintroducing mass transport. According to the report to the 8th EST, the country planned to enforce an integrated fare system for public transport based on distance, and Smart card tickets were introduced. Barrier-free buses were also planned. During the 9th EST forum, public transport planning had been completed for 8 primary routes, 16 secondary routes and 42 tertiary routes, with bureaucratic restructuring to support. And in the report to the 10th EST Forum, Nepal reported that it had completed District Transport Master Plans, that public transport services had been rolled out along 7 routes in Kathmandu Velley and Kathmandu City by Sajha Yatayat, and that rural access program was underway. Media reports also indicate that night public transport service was to become available on several routes in the Kathmandu Valley, enabling night-shift workers to have safe and reliable transport (http://kathmandupost.ekantipur.com/news/2017-02-15/sajha-yatayat-begins-night-bus-service-in-valley.html). Nepal has made important progress in public transportation roll-out over this period. Cable car projects have also been cited as public transport projects, but primarily focused on the tourism industry, as well as the hydropower construction industry.
the Philippines	Public transit has improved dramatically, especially for the Philippines' major cities, as reported in EST reports. The 5th EST Forum report focused on expansion of Manila's MRT and LRT systems, as well as BRT for Metro Manila, Cebu and Davao. Integrated ticketing was also under development. The 6th EST Forum report focused on a Mega Manila Public Transport Planning Support System, Public Transport Strategic Plan for Metro Cebu and a Sustainable Urban Transport in Davao City Plan. Meanwhile, Metro Manila's LRT 1, Line 1 North Expansion, Line 2 MRT and North Rail line reconfiguration were underway, with BRT development in Cebu City. The 7th EST Forum maintained these public transport projects, while facing resistance from private-sector transit operators. At the same time, 2-stroke tricycles were replaced. The 8th EST Forum expanded the list of rail and BRT programs under way, and the 10th EST Forum report reports that some legal bottlenecks related to BRT have been resolved, projects are being constructed in Cebu, Metro Manila, and Point-to-Point Buses have been launched to shorten the time commuters need to take daily.

Pakistan	Pakistan's report to the 5th EST forum noted that mass transit systems and fleet management practices were a major national EST policy objective. The country was pursuing comprehensive concession agreements and exclusivity of routes for operators of clean energy buses, improving safety or operators, and creating flexible fare structures for operators, with bus implementation the top priority for urban transport. The 6th EST Forum report noted that CNG buses were being procured for mass transit. By the time of the 7th EST Forum, Pakistan reported that public transport pilots operating in BRT, intercity bus services, railways, etc. The BRT projects in Lahore and Islamabad, along with proposed projects in Karachi and Peshawar were featured in the 8th EST Forum report, with Pakistan's first urban rail project (in Lahore) featured as a new project for the 9th EST Forum. The Karachi Transportation Improvement Project featured a mix of projects along various corridors to be completed in 2030. Further projects were discussed in the report to the 10th EST Forum.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	At the 5th EST Forum, Singapore noted that it aimed to make public transport a choice mode, integrating the public transport system, giving priority for buses, expanding the rapid transit system network and capacity, and enhancing the travel experience and safety. The plan focused on centralized bus network planning, distance-based fares, integrated hubs and integrated land use and transport planning. The country targeted 278 km of rail by 2020, and aimed to enhance the commuter experience by providing real-time bus arrival panels, bus services maps, SMS for bus arrival information, a mobile phone app, website, premium bus services and an integrated ticketing system. At the 6th EST forum, Singapore noted that its public transport operations are self-funded, That the public benefit from a world-class transportation system, with fares that amongst the lowest in the world. This was accomplished in part by a next-generation national transport fare clearinghouse system. At the 8th EST Forum, Singapore expanded on its public transport plans including a rail development plan, addition of trains, signaling upgrades and re-sleepering of tracks, a bus service enhancement programme, and transition to government contracting model for bus services, allowing public bus services to be more responsive to changes in ridership and commuter needs.
Sri Lanka	Sri Lanka started the Bangkok 2020 Declaration period with a high, but quickly falling, mode share of public transit, and the challenge of maintaining levels of service while expectations grew, and private cars became more accessible. Even during the 5th EST Forum, Sri Lanka reported that it was considering BRT, upgrades to its fleets and upgrading of bus terminals. Park and Ride systems were introduced and reported to the 6th EST Forum. A JICA-assisted study on Colombo transport corridor identified potential public transport upgrades and was reported at the 8th EST Forum along with detailed maps of potential transport routes as well as intermodal hubs. The transport master plan was realized with the help of many international partners. Progress was reported in Sri Lanka's report to the 10th EST Forum, citing planned projects including revision of bus routes in Colombo metropolitan area, and introduction of shuttle bus feeder routes.

Thailand	Thailand has encouraged public transit for nearly a decade, beginning in 2008 with free selected bus routes (non-air conditioned) in Bangkok and trains throughout the country. The BRT reduced its fare to attract riders. Bangkok has a well-developed MRT system, with plans to expand the service to 12 lines at a length of 509 km by 2029 by constructing LRT and Monorail. The BRT system consists of 10 routes at a total distance of 200km. Meanwhile, park-and-ride system attract drivers to leave their cars at distant locations and take the train into the city, thus relieving pressure from the road network. Public buses are a key platform on which to implement fuel switching, and the government plans to change over 3,000 buses and more than 300 engines from diesel to CNG to avoid diesel emissions. Bangkok has also implemented common electronic tickets for many forms of public transit in the region, although in 2015, it was reported that electronic tickets are often not interconnected between transport modes. (http://bk.asia-city.com/city-living/news/bts-new-promotional-fares-are-way-more-expensive-single-journey-tickets) Other pilot projects have been underway in Thailand. During the 7th EST Forum, public transport in Klaeng District of Thailand was reported on, where free public transit was provided on four minibuses, serving 300 students and 170 other users per day. The project saw reduced fuel consumption, reduced GHG emissions, and further encouraged people to engage in more physical exercise. The 10th EST Forum report notes that MRT is under construction in Bangkok.
Timor-Leste	Timor-Leste has not yet reported on improvements to the public transport services.
Viet Nam	Public transport is a major focus of sustainable transportation in Vietnamese cities. Many cities in Viet Nam have set targets for public transport to increase modal share of 25-45% in the 2020-2030 period, while most communities currently sit at 10%. Ha Noi and Ho Chi Minh City have put major efforts into developing BRT and MRT systems and associated planning standards in place. Plans are in place to shift mode by reducing the number of motorbikes and cars on the road in Ho Chi Minh City and Ha Noi.
Goal-6: Reduce the urban transport mode share of private motorized vehicles through Transportation Demand Management (TDM) measures	
Afghanistan	Afghanistan's basic infrastructure still poses a significant problem to the development of EST, and therefore considerations for TDM have received less attention in planning to date. Although TDM is mentioned in the draft Air Quality Strategy, progress was not reported in 2015.
Bangladesh	Being a country where many people have low income, willingness to pay for transport is a key constraint to using price as a means of limiting transport demand. Yet, some initiatives have been taken. Road tolls, parking fees and fuel levies are meant to be charged to discourage automotive transport in cities. Working hours of government offices, financial institutions and educational institutions have been staggered to reduce road congestion during peak hours in urban centres, different off days for markets in urban areas have been introduced, and freight vehicles are prohibited from entering Dhaka during day time. Discussions have been had regarding the challenging policy of congestion charging in Dhaka. Sylhet City noted at the 8th EST Forum that using its Master Plan, it was able to ensure that all new construction in the city would provide adequate parking facilities so as to avoid on-street or on-sidewalk parking. The 10th EST Forum report addressed issues of flexible working hours in government offices, financial institutions, educational institutes, etc.; different days off for markets in urban areas; freight vehicles prohibited from Dhaka during daytime, and CNG price is being increased.
Bhutan	Bhutan has taken some measures to manage the demand for transport. As an awareness-raising measure, World Environment Day (5 June) has been declared a "vehicle free" day in urban centers. On a more practical basis, parking fees have been introduced in Thimphu and Phuntsholing, and taxes, duties and green taxes have been levied on vehicle imports. By 2015, there was a ban on the import of second-hand vehicles implemented, outside a zero-tax policy for import of electric vehicles. However, the growth of the automotive population seems to continue relatively unabated.

Brunei Darussalam	Transportation demand management was not a key part of planning in Brunei Darussalam at the 7th EST Forum. Yet the country was starting to feel the strain on its infrastructure from too many cars. Research on traffic congestion, and road safety was undertaken, with the aim of implementing recommendations under those two programmes. The Land Transport Plan identified several TDM measures to be incorporated in the transport system including as a minimum, a focus on parking management, land-transport integration, investment in public transport and physical and regulatory regulation of access to urban centres and other sensitive locations. One key TDM measure is to convince families to allow their children to commute to school by non-car means, including school buses or non-motorized transportation.
Cambodia	Cambodia identified the need to develop a clear roadmap to manage the demand for private transport use at the 5th EST Forum, but has only been followed up with the development of a ring road to divert through traffic, reported at the 8th EST Forum. The country's "Framework for the Decade" did not explicitly include traffic management as a pillar (9th EST Forum).
P.R. China	Major cities in China are experiencing extreme traffic congestion. Beginning with a trial during the 2008 Olympic Games in Beijing, Beijing limited cars allowed on the road to even or odd license plate numbers developing on the day of the week. Today, Beijing allows any one vehicle to drive only 4 days of the work week. Furthermore, new license plate purchase has been capped in Beijing, forcing new car drivers to take place in a lottery, where many people wait more than a year to receive a license plate for cars, thus keeping them in the public transport or non-motorized transport system. Shanghai has utilized parking pricing and a vehicle plat auction system, and other cities across China have made use of other similar mechanisms to limit the number of cars entering the road transport system. In recent years, Beijing has undertaken major efforts in the design of a potential congestion charge for areas of the city, but has not been implemented due to lack of consensus between stakeholders on this issue. Other cities are reportedly watching to see Beijing's experience before implementing their own congestion charges.
Indonesia	Indonesia's National EST strategy focuses on ERP / Road Pricing, Parking policy and private car-use disincentives for TDM, and has enshrined these concepts in its National Action Plan for GHG Emission Reduction. This action plan outlined 12 cities of Medan, Padang, Pekanbaru, Palembang, Bandung, Semarang, Yogyakarta, Surabaya, Denpasar, Makassar, Balikpapan and Banjarmasin to target parking management as a strategy to reduce car use. Meanwhile, congestion charging and road pricing was proposed for Jakarta and Surabaya, combined with adequate mass rapid public transport systems. Reports from 2016 indicated that although policies are in place, parking management still requires detailed implementation work. (http://www.id.issworld.com/en/people/our-stories/parking-management). And although the policy discussion on ERP/road pricing or congestion charging has gone ahead, it has faced technical and governance challenges and not yet been implemented. Jakarta has, however, implemented an odd-even license plate limiting system along 5 major roads in the city as a means of controlling congestion (http://asia.nikkei.com/Politics-Economy/Economy/Skepticism-clouds-Jakarta-s-car-congestion-fix). Indonesia reported in its 10th EST Forum report that it would continue restricting vehicles on an odd-even basis until electronic road pricing was rolled out.
India	According to India's National Mission for Sustainable Habitat, the country plans to manage transport demand by using technology, regulating road use, and parking and fiscal measures, and transport demand management is also a component of the National Transport Development Policy. (6th EST Forum report). It was also reported that the National Mission for Sustainable Habitat would address the issues of taxation, parking and congestion charges and service norms to reduce demand for transport. During the 7th EST Forum, India reported that the current status of transport planning at that time was overwhelmingly supply-side focused, though parking policy was still under development. A transportation demand management toolkit and a demand assessment module were under development at that time. By the end of 2015, the Delhi government announced that each private car and two-wheeler would be allowed on the city's roads only every other day in order to reduce vehicles on the road and pollution. (http://www.hindustantimes.com/delhi/delhi-vehicles-with-odd-even-number-plates-to-ply-on-alternate-days/story-Cr9i3ERsnsTJVP8ikdDm6N.html)

Japan	Japan has considered TDM from many dimensions. During the 5th EST Forum, it introduced the concepts of Mobility management, which uses awareness to promote voluntary changes in mobility such as moderate use of public transport and bicycles; and, eco commuting, where offices would appoint a person to be in charge of coordinating commuting by providing public transit route maps and timetables, etc. In its report to the 7th EST Forum, Japan noted that TDM is mostly reliant on awareness, and was related to Goal 19. Financial support would be provided to approved awareness plans, as well as to optimization of public transport distribution in urban areas. Japan added park & ride projects to its mix of TDM strategies reported at the 8th EST Forum
Republic of Korea	In 2010 at the 5th EST Forum, Republic of Korea introduced congestion charges, restriction on total traffic volumes and reduction of parking availability as its major TDM strategies. These were expanded upon at the 6th EST Forum, noting congestion charges, car-sharing, eco-driving and IT-based remote working as possible strategies, while exploring the possibility of Green Transport Zones, traffic volume caps by region, and public transport-focused urban development. The concept of traffic-induced charges for large-scale distribution facilities in major cities was introduced during the 7th EST forum, and a comprehensive approach to TDM was introduced at the 9th EST Forum, including Traffic congestion charges, car "rest days" based on license plate number, parking controls, NMT promotion, lane distribution between modes, public transit promotion, traffic generation charges to businesses, and flex time and flex place strategies for working. The government planned to rationalize parking fares and strengthen parking standards, introduce area-based congestion charges and maximize ICT for transport demand management.
Lao PDR	Lao PDR reported that TDM was an important strategy for EST in its report to the 5th EST Forum, and expanded on this at the 6th EST Forum, reporting that is was implementing EDM measures to reduce trips into the core area, encouraging public transport usage, revising parking arrangements (including fees) and improving enforcement, improving pedestrian facilities and light-controlled pedestrian crossings, improved lighting and control centers and protecting the environment in the historic core area with pedestrian priority areas. The plan also featured a park and ride car park at the east and west ends of the core.
Malaysia	TDM was first discussed in Malaysia's reports in the context of the Greater KL/Klang Valley Land Public Transport Masterplan, underlining objectives and strategies for TDM measures. Measures mentioned in the plan include prioritizing bus, taxi and NMT modes in road planning, encouraging telecommuting and flexible work hours, advertising campaigns, parking controls, fuel price policy and road pricing or congestion charging, after public transport services are in place. ((http://gtp.pemandu.gov.my/gtp/Improving_Urban_Public_Transport-@-GTP_2@0_Improving_Urban_Public_Transport.aspx). However, government websites now only feature parking control and management and implementation of journey planners as current active TDM actions. (http://gtp.pemandu.gov.my/gtp/Improving_Urban_Public_Transport-@-GTP_2@0_Improving_Urban_Public_ Transport.aspx)
Maldives	Maldives reduces demand for automotive transportation with several mechanisms, reported at the 7th EST Forum. First, there are regulations in force to limit the number of cars allowed on each island, although control mechanisms are needed. Furthermore, no vehicle days have coincided with public holidays, where the public comes out to walk on the streets.
Mongolia	The government has reported three key initiatives to reduce transportation demand (7th EST): · State workers (~15K people) will use public transport · Private cars are restricted according to plate number digits in downtown area during weekdays · Development of school bus services, not common in Mongolia.

Myanmar	In the 6th EST, Myanmar reported a series of TDM strategies to calm traffic and attempt to shift people to other modes: · Applying one-way system on some busy roads · Restricting slow vehicles to run in the stipulated areas · 3 ton above trucks are not allowed entering the down-town area · On some main roads, vehicles are not allowed to stop and park at the daytime as well as at night; · " The Outer right Lane " of the road is specified for buses · Some area are specified as "no horn zone" in the target townships · Collection of tax for parking · Installation of CCTV and Cameras for monitoring of traffic infractions CCTV cameras have been installed to control traffic in major cities such as Mandalay and Yangon. All townships in the country collect toll fees and vehicle taxes are collected according to policy (7th EST Forum report). Myanmar imposes fines for causing road congestion and collects toll fees on the expressway. (8th EST Forum Report) Fines have been increased dramatically over the last 2 years. Yangon City Development Committee has planned to implement parking in CBD and to build a multi-storied car parking in urban area, and 1/3 of traffic signals are to be upgraded in Yangon (9th EST Forum report). Finally, The Motor Vehicle Law passed in September 2015. According to Myanmar's report to the 10th EST Forum, the Yangon Transport Authority has now been set up, and YBS is being implemented in Yangon City.
Nepal	At the 5th EST Forum, Nepal reported that it had received funding for traffic management support as part of the Kathmandu Sustainable Urban Transport project, and that it was upgrading traffic management and organizing public transport as a means of reducing demand for transport. During the 6th EST Forum, a JICA study for Kathmandu Valley traffic management was to come underway. Congestion pricing policy was also being researched. At the 7th EST, Nepal reported that it had started traffic management, and that the functions of transport infrastructure and transport management had now fallen under the same ministry. However, in its report to the 10th EST forum, Nepal reported that the rapid increase in vehicle population was presenting many challenges to sustainable transportation. Internet research indicates that Sajha Yatayat, a public transportation bus system in Nepal, had begun long-haul bus service to Baglung, Gorkha, Birgunj and Lumbini in late 2016 (http://kathmandupost.ekantipur.com/news/2016-11-14/sajha-yatayat-expands-bus-service.html).
the Philippines	The Philippines initially focused on toll roads as a means of managing demand for transport, having piloted tolls in 8 major roadways as reported at the 7th EST Forum. At the 8th EST Forum, the toll road network had expanded to 321.3km, and car-free day and car-pooling were under development. At the 9th EST forum, the report focused on Transport Network Companies and Vehicles (using online reservation systems) as a means of shifting people away from using their own private vehicles, and parking levy policies were under consideration. Metro Manila has also put a moratorium on petitions for exemption from the areas' Unified Vehicular Volume Reduction Program, which limits the days on which certain vehicles may drive on Manila's roads according to license plate number.
Pakistan	Introduction of parking fees was reported as an TDM outcome during the 5th EST Forum for Pakistan, with construction of parking facilities considered in the 8th EST Forum report, along with staggering of working hours, especially for schools, to moderate peak traffic times. In its report to the 10th EST Forum, Pakistan reported that it had linked fuel prices with international oil prices as an NMT measure, and started to promote provision of dedicated buses for institutions. The government is currently developing a national transport policy.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.

Singapore	Road usage management (TDM) was reported to be a Key Strategy for EST and a People-Centered Land Transport System by Singapore at the 5th EST Forum, aiming to reduce vehicle population growth rate, and leverage technology to optimize road capacity. Singapore reported that it had reviewed a vehicle quota system and enhanced off-peak car system, as well as new technologies for electronic road pricing. Furthermore, a parking guidance system, electronic regulatory signs, junction cameras, expressway monitoring and advisory system and signalized pedestrian crossings had been installed to help manage road use. In its report to the 10th EST Forum, Singapore noted that it would reduce its vehicle growth rate under the quota system from 0.5% to 0.25% per year from February 2015, with a view to reducing growth to zero. Furthermore, a next-generation Electronic Road Pricing system based on a global navigation satellite system is being developed and could be implemented around 2020.
Sri Lanka	Sri Lanka has been reporting on some TDM since before the Bangkok 2020 Declaration, including the launch of a car pool concept with top 10 companies in Sri Lanka, as well as a park and ride program and encouragement of flexible working hours, all reported during the 5th EST Forum. During the 8th EST Forum, the country reported that TDM strategies would be established when the Urban Transport Master Plan for Colombo Metropolitan Region and Suburbs was implemented (by 2020, 2025 and 2035). The report to the 9th EST focused on enhanced parking facilities in the core including strict compliance on minimum parking facilities in new buildings, and fee levying for parking. In the country's report to the 10th EST, it was confirmed that parking management was being done through metering, and a carbon tax was being considered along with a bus priority lane pilot project.
Thailand	By the time of the 7th EST Forum, Thailand had not reported specific projects for TDM as part of its EST strategy other than promoting inter-city rail as a means of reducing demand for private vehicle transport. This concept has not been thoroughly discussed in documents related to development or projects. Media reports from 2016 that the Ministry of Transport may use congestion charges, increased parking fees or other strategies to reduce congestion in Bangkok. (http://www.bangkokpost.com/learning/advanced/1044013/traffic-congestion-drivers-may-pay-to-enter-central-areas)
Timor-Leste	Timor-Leste has reported that it will improve taxi service as well as develop more transport regulation and law enforcement to control traffic, reduce pollution and minimize accidents.
Viet Nam	Major cities in Viet Nam have experienced heavy traffic for many years, and with car ownership often considered a sign of success, congestion is getting worse. In 2010, Ho Chi Ming City proposed a plan for congestion charging for cars entering the city, including 36 automated toll booths and specialized cameras to recognize car number plates along with other technologies to charge fees. Although the plan has not yet been implemented, the plan has appeared in the media as recently as December 2016. Additionally, Hanoi has recently invoked a ban on motorcycles from other provinces entering the city. According to the plan, by 2020, the number of motorbikes will be limited during the weekend in the Old Quarter, and by 2021, motorbikes from other provinces will be banned. Taxis from other provinces may also be banned in the city, if a legal basis can be formed. These bans should be accompanied by public transport increases, with plans to serve 25% of transport demand by 2020, using 15 to 20 new bus routes and over 500 new buses. (http://www.dtinews.vn/en/news/024/47225/hanoi-ban-on-motorbikes-from-other-provinces-sparks-controversy.html)
Goal-7: Achieve significant shifts to more sustainable modes of inter-city passenger and goods transport	
Afghanistan	Inter-city transportation is a key focus of Afghanistan's transportation planning. The Extractive Resources Corridor Program has a special focus on rail connectivity, and the construction of highways between cities was prioritized according to the report to the 7th EST forum. During the 8th EST forum, it was reported that work was ongoing on major highways, including a national-level ring high way linking all major cities and main border crossings, with a feasibility study of rail network expansion underway. No progress was reported by the time of the 9th EST forum in Kathmandu. The security situation for ground transport has also encouraged progress in air connectivity in the country.

Bangladesh	Bangladesh has very good opportunities for inland water transport, and has completed a water route surrounding Dhaka which is in operation. A high-quality inland water transport serve from Dhaka to the southern region has also been introduced, and there are a number of inland container ports. Yet dredging to keep these and newer services operational is expensive, detracting from further development. Rail services between Dhaka and important cities has been enhanced, and double lining of some rail track has been initiated, making freight movement more convenient. By 2020, 350 km of new rail track and double rail lines between Dhaka and Chittagong will be completed, and commuter train services will be increased. Installation of high-speed passenger rail has even been explored. Finally, highway corridors are being upgraded from 2-late to 4-lane, and the three busiest national highway corridors will be upgraded by 2020, making passenger and freight movement between cities easier. Intercity bus terminals are in place at the periphery of cities with connections to city centers in place.
Bhutan	Roads and air are the primary means of inter-city travel in Bhutan. The rugged terrain of the country means that other forms of transport may be very difficult or expensive to install and operate safely. Even the 2040 Integrated Strategic Vision notes that rail will be difficult to achieve in the near future. Although discussion have been ongoing for Indian Rail to come to Bhutan, it seems that delays have occurred, pushing the possibility of rail even further into the future. Ropeways have been mentioned as a way of transporting certain commodities in sensitive areas, and inter-modal facilities such as warehouses, cold storage, inland container depots and dry ports are potential means of improving inter-city goods movement. Finally, the government has been advised to introduce taxi incentives for new large trucks that are fuel efficient and emission standard compliant. The country reported for the 10th EST Forum that it had completed design and tendering of a dry port.
Brunei Darussalam	There is little information regarding inter-city transport in Brunei Darussalam. This could be because of the small land area of the country. Some mention of rail to other parts of Borneo was explored in a Land Transport White paper, but it was found that the costs would be to high given Brunei's small population.
Cambodia	During the 8th EST forum, Cambodia reported that there was work on-going on ring roads and railway improvement as well as construction to facilitate motilities of goods and people. Internet research suggests that passenger service from PhnomPenh and Sihanoukville in the south resumed in 2016 (http://investvine.com/passenger-trains-revived-cambodia-14-year-hiatus/), a western line to Thailand is opening in phases (http://www.voanews.com/a/cambodia-takes-first-step-in-connecting-regional-railways-105662543/166537.html), and other lines are under discussion.
P.R. China	P.R. China has reported that institutional reform, connection between seaport and railways and planning comprehensive transport terminals are important foci of goods transport. Logistics parks have become a major effort in urban planning, especially intermodal terminals between inter-city transport and inner-city transport, allowing for better vehicle utilization, and online platforms and telematics have allowed for better coordination of freight movement so that more efficient modes can be used. Meanwhile, China has rolled out the world's largest high-speed rail network to improve rail transport for passengers. Although times for long-distance trips are still longer than flights, rail times have been cut in half or less for most trips. Old low-speed passenger rail lines have been investigated for potential use as express inter-city delivery service. Many of these programs have yet to be perfected, but are all under development for China as well as for export to other places in the world.
Indonesia	Since the 5th EST Forum, Indonesia has reported on the development of rail and bus systems through between cities. In 2010, the country aimed to revitalize railways, build a new network, double tracks, convert diesel locomotives to electric, construct airport railways and monorail systems for cities. According to the KPPIP, Indonesia plans to develop new rail tracks in Java, Sumatra, Sulawesi and Kalimantan including 2,149 km of inter-urban railway. The country will build 24 new sea ports and 60 crossing ports, and 15 new airports including cargo facilities in 6 locations. Finally, Indonesia aims to construct high-speed rail from Jakarta to Indonesia. While ground-breaking took place in January 2016, the project still faces challenges, especially in acquiring land.

India	India reported to the 8th EST forum that it would undertake construction of more expressways and dedicated rail freight corridors as well as a Delhi-Mumbai corridor with gas highway. Besides this report, there is little information in India's reports to the EST Forum process on inter-city transport. Reports from the World Bank indicate that India is moving ahead with a dedicated freight rail corridor to facilitate faster and more efficient freight transport. (http://www.worldbank.org/en/news/press-release/2016/10/21/government-of-india-world-bank-sign-usd650-million-agreement-for-eastern-dedicated-freight-corridor-project), which is expected to result in significant GHG emission reductions on a unit of freight basis.
Japan	During the 7th EST Forum, Japan reported three major initiatives for inter-city transport: promotion of modal shift, promotion of low carbonization of freight using railways beginning in 2012, and the Shinkansen Railway Development Program to continue network development. At the 8th EST Forum, Japan reported that it would support transport operators to purchase fuel-efficient trucks so as to reduce CO_2 emissions from freight movement. It also reported that the government would offer partial funding for purchasing 31ft container trains for railway freight businesses. During the 9th EST Forum, Japan expanded its efforts to promote EV, Fuel Cell, Hybrid and high-speed CNG trucks for cleaner freight. In Japan's report to the 10th EST Forum, it described the impact of the Total Logistics Efficiency Act, and that modal shift from truck to rail or waterway could be approved. The Shinkansen network continued its expansion.
Republic of Korea	At least since the 5th EST Forum, Republic of Korea has reported on providing subsidies to encourage mode shift from truck to rail. The country targeted 15% rail and 22% coastal shipping by 2012. The country also targeted improved high-speed rail, extending the system to 363km by 2012 and improving alignment to accommodate 200-230 km/h speeds. Rail services would be electrified. During the 6th EST Forum, the country aimed to complete construction of the 2nd phase of the Honam high speed rail by 2014 and to speed up existing railways. Coastal shipping was encouraged with finance guarantees from the Korea Credit Guarantee Fund, and port facility fees were reduced. During the 7th EST Forum, Republic of Korea reported that it would implement a double-tracked railway inland project, develop an integrated ticket system for express/intercity bus, and real-time location information using GPS, and connect BRT systems between urban and suburban areas.
Lao PDR	Lao PDR reported during the 5th EST Forum that it was upgrading existing port facilities as part of the Mekong River Integrated Management Project, and during the 7th EST forum that a comprehensive study on logistics system was being undertaken with support from JICA, and that transport logistics was one of the five thematic areas of the Land Transport Master Plan in Lao PDR. However, mode shift was not specifically mentioned in Lao PDR presentations.
Malaysia	The National Green Technology Council took on promotion of rail-based transport especially for freight movement as a goal before the 5th EST Forum, indicating that this policy has been part of Malaysia's planning for many years. Increasing the capacity of rail transport was also a national key result area. During the 7th EST Forum, Malaysia reported that infrastructure is largely in place, but would be upgraded and that high speed rail from Kuala Lumpur to Singapore was in the planning stages. A roadmap for logistics development was reported at the 8th EST Forum. The 10th EST Forum report noted that a National Logistic Masterplan was in place.
Maldives	Maintaining a high quality bus and ferry network are the key means of ensuring sustainable transportation in Maldives. Although automobile population is growing, most transportation is still done by sustainable modes across the country. Automobile population is a challenge that the country will face, however.
Mongolia	The 2030 Master plan states that light rail transit will operate on existing railways in Ulaanbaatar City and connect satellite towns. However, this system was also likely postponed in 2015 along with the Ulaanbaatar city light rail. The government reports implementing a direct road network system between Ulaanbaatar city and 21 aimag /administrative units/ to connect them centers by 2016. (7th EST Forum report) In its report to the 10th EST Forum, Mongolia reported on the establishment of a master plan for mineral resources and infrastructure development and financing requirements of Mongolia, and planned to connect Ulaanbaatar with 21 provincial centers with paved road by 2017, becoming more sustainable and comfortable for inter-city travel.

Myanmar	During the 7th EST Forum, Myanmar reported that it had been developing Dawei, Kyaukpyu and Thilawa special economic zones and deep-sea ports linked with these corridors and highways. Regarding Freight Transport, a feasibility study was carried out in Yangon and Mandalay City, and construction was reported to be planned for 2015. Regarding Passenger Transport, a feasibility study was finished to upgrade Yangon-Mandalay rail transport and will be completed between 2015 and 2020. (8th EST) According to the 9th EST Forum report, number of feasibility studies have been carried out on public transport in Myanmar including BRT for Mandalay, rail projects, dry ports in Yangon and Mandalay, international airports and for upgrades of existing infrastructure. These have been done in parallel with development of a program called MYT-Plan, which promotes ICT and infrastructure to handle increased transport demand.
Nepal	The concept of an electric trolley and electric railways for Nepal have been researched since at least the 5th EST Forum. However, given that basic infrastructure challenges exist, the focus of funding has been consistently on road maintenance and upgrades. At the 6th EST Forum, Nepal noted the completion of its Pokhara Electric Railway study, and had made legal improvements to Roads Board Nepal. The country noted that it would develop expressways to improve speed under a PPP model, and bypasses and ring-roads were being built or improved in several cities to allow through-traffic to avoid busy urban areas. During the 7th EST Forum, road widening was underway, with more than 100 km widened in the Kathmandu valley. This process continued with the widening of the East-West highway to four lanes underway during the 8th EST Forum, and 30 km of railway under construction. The Kathmandu-Nijgargh Fast Track expressway also remains under discussion and design – the highway would shave over 150 km distance from every trip between Kathmandu and the India-Nepal border. However, challenges remain. At the end of 2016, JICA reported that Japan had signed an ODA Loan Agreement with Nepal to build the Nagdhunga Tunnel which will reduce congestion along Nepal's major trade route and reduce distanced travelled by several kilometers. (https://www.jica.go.jp/english/news/press/2016/161222_01.html)
the Philippines	Beginning at the 7th EST Forum, the Philippines noted that its inter-city passenger and goods transport sustainable systems were largely in place. Projects included a Nautical highway system with featured RORO ferry network for seamless movement of large vehicles from ferries to land port. A planned integrated Luzon Railway would include an airport express link by high-speed train, and redevelopment of PNR lines in Luzon; Inland water transport would connect the Manila Bay coast and Laguna Lake to the existing Pasig River Ferry System; and, the High Standard Highway Development Plan would focus on debottlenecking inter-city high networks. By the 9th EST Forum, the RORO project was noted as fully completed, and PPP finance was sought for a North-South Railway project, Regional airports development, operations and maintenance, a Davao Sasa Port Modernization Project, and Integrated Transport System projects. By the time of the report to the 10th EST Forum, the North-South Railway project (south line) is up for NEDA board approval; an ongoing feasibility study is underway for a Mindanao Railway Project, a Central Spine RORO project is being developed and implemented through PPP finance, and the Pasig River Ferry has been integrated and relaunched in December 2016.
Pakistan	Pakistan has focused on rejuvenation of its rail system as a means of improving freight and passenger inter-city transport. Pakistan reported at the 7th EST Forum that 37 new railway infrastructure projects were planned for 2013. The 9th EST Forum report indicated that 7,700 km of track were in use, with international links to India, Iran and Afghanistan – although rail freight was only responsible for 4% of freight and 6% of passenger traffic (with most using on-road). The report noted that speed increases were being investigated for Main Line 1 (1800 km), and that train traffic from ports had improved 5 times from 2 years earlier. Pakistan has also long focused on fleet managers to maintain vehicles and monitor fuel consumption (at least since the 5th EST Forum), and according to the report to the 10th EST Forum, Pakistan launched a program called "Improving Fuel Efficiency in the Trucking Sector" to demonstrate best practices in the trucking sector for modernizing the truck fleet. Inter-city transport is an area of high priority for Pakistan.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.

Singapore	Singapore reported at the 8th EST Forum that it had made an agreement with Malaysia to build a high-speed rail link from Singapore to Kuala Lumpur. In addition, there were plans to develop a Rapid Transit System between the northernmost train station of the Thomson-East Coast Line and Johor Bahru in Malaysia. Tendering was underway for the high speed rail project according to Singapore's report to the 10th EST.
Sri Lanka	By the time of the 5th EST Forum, Sri Lanka had reported improvements to the rail system to allow for better inter-city transport, including upgrades to lines, reconstruction of lines destroyed by war and improvements to signaling and level crossings. Use of inland waterway transport was also reported around Colombo City, as was improved cargo transportation by train. Better quality bus and train services for passenger freight and train and inland water transport were again mentioned during the 7th EST Forum. The 8th EST Forum report discussed a plan for installation of an interprovincial bus terminal at the intermodal hub proposed at Fort/Pettah, along with rail, monorail and BRT access. At the 9th EST Forum, waterways remained a topic of discussion, even though only a few pilots had been carried out in the past. Electrification of rail as well as a ring road to divert through traffic from the Colombo city center was proposed. The report to the 10th EST Forum notes that a railway strategic plan 2015-2020 was prepared, and that freight transport between ports and major cities could be undertaken by rail, but also that domestic airport development was underway. Sri Lanka aimed to upgrade its bus system and passenger coaches for intercity rail, and sought to upgrade its railway tracks.
Thailand	Thailand has investigated a number of ways to improve inter-city transportation, especially through rail. During the 5th EST Forum, the country reported improvements to its intercity rail connections, and expansion from single to double tracks for some segments. During the 6th EST Forum, it was reported that Thailand currently services 4,346 km of railway, with plans to double track 767km of track, improve sleepers, buy new locomotives and improve train-road barriers. By 2013, the Ministry of Transport had resolved to build 1,500km of high-speed rail, but this proposal was cancelled, and the plan to improve existing services went ahead. A proposal for a China-Thailand high-speed rail line has been discussed since 2014, and after many discussions, bidding has been underway, and in early 2017, a 3.5km test track will be built, followed by a 256km high-speed railway from Bangkok to Nakhon Ratchasima. The 3.5 km test track has already revealed challenges with incompatible standards between China and Thailand, but it is said that China is resolving these issues (http://www.bangkokpost.com/news/general/1191621/thai-chinese-train-faces-design-delay). Internationally, the railway would link with a China-Lao PDR railway, allowing Bangkok to Vientiane travel in just 4 hours, and continue on to Kunming. (http://shanghaiist.com/2016/12/20/china-thailand-railway.php) The route would also connect Lao PDR to ports and industrial zones in Thailand's east. In 2017, Thailand began negotiations with Malaysia on a potential high-speed rail connection. (http://asia.nikkei.com/Politics-Economy/International-Relations/Thailand-Malaysia-to-start-talks-for-high-speed-railway)
Timor-Leste	In its report to the 9th EST Forum, Timor-Leste indicated that inter-city transport is basic, and requires paved road infrastructure. A national road development project, 2014-2020 was described, as well as a Southern Coast Project Highway Suai-Beaco to support development of the petroleum industry. The report to the 10th EST forum indicates that new airports and ports will be built.
Viet Nam	Inter-city transport has been a focus issue for Viet Nam, and by the 7th EST Forum, had identified a need to develop port and railway infrastructure for the country. During the 8th and 9th EST forum, it was reported that the Ministry of Transport had approved an action plan to reinforce inter-city linkages and to raise the capacity and efficiency of different transport modes, and according to the national railway master plan, an external railway network linked with seaports and border countries will be constructed, along with high-speed passenger rail connecting to the Pan-Asia High Speed Rail Network being supported by the PRC and partners. While inland water transportation is still very important for the economy of Viet Nam, it is gradually being replaced by truck transport, which was an issue noted at the 8th EST Forum, with a proposal to increase the loading capacity of trucks. However, as of the 9th EST Forum in 2015, many of these proposals still required implementation
Goal-8: Diversify towards more sustainable transport fuels and technologies	
Afghanistan	Several proposals and plans have been developed to encourage conversion of vehicles to CNG and LPG, but by the 9th EST forum, it was noted that the country faced the challenges of lack of policies and strategies on PPPs to help implement this plan.

Bangladesh	With resources in off-shore natural gas, Bangladesh has focused on CNG as a more sustainable fuel than gasoline and diesel. The National Land Transport Policy from 2004 placed emphasis on CNG, and now many vehicles, especially rickshaws and public transport vehicles, use this fuel. Some urban areas have explored the waste-to-fuel fuel chain, and electric power is being introduced to rickshaws. Waste-to-fuel has been researched in Bangladesh, but requires policy and investment to undertake waste management practices that may render useful quantities of gas.
Bhutan	As a very small market, Bhutan has had challenges in importing cleaner fuels. During the 5th and 6th EST forums, Bhutan reported on plans to import biodiesel and bioethanol into the country to reduce the environmental impacts of transportation, but in later years, this initiative was no longer mentioned, and it likely proved difficult to secure supply of these fuels. However, Bhutan is known to have great hydroelectric resources that could provide clean electric transportation, and the government has taken some initiative to push this clean technology. By the 9th EST forum, the country reported having 91 EVs – 0.12% of the total vehicle fleet; 6 quick charging facilities, zero tax on import of electric vehicles, and exploration of replacement of taxis with EV taxis. In 2016, the World Bank produced scenario analyses and detailed policy support concepts for rolling out EVs in Bhutan. However, as nearly 70% of imported fuel is diesel, and EVs currently do not easily replace heavy duty diesel vehicles, the impacts of electrification may not be as large as expected. Still, these efforts will be key to improving sustainability of personal transport in the country. As of the 9th EST forum, it was reported that a network of electric charging stations along road system and cities was being built, and EV operators reported that even more would be necessary to provide quality transport services using electricity.
Brunei Darussalam	Brunei is an important supplier of crude oil in Southeast Asia and also has its own refining capacity. As a result, it is able to provide very cheap petrol and gasoline domestically, leaving little incentive for a change in fuels or automotive technologies. There has some been some promotion of hybrid and small vehicles, but little information is available about electrification of transportation in the country.
Cambodia	Cambodia has not substantially reported on alternative vehicle or fuel technologies at the EST Forums.
P.R. China	P.R. China has emphasized fuel diversity as a means of energy security for many years. In the early 2000's bioethanol was promoted as a low-carbon fuel additive, until 2009 when the fuel's relationship with land use change was discovered, and expansion was basically capped. Yet, P.R. China still has a focus on developing cellulosic ethanol. Waste-based biodiesel is also a potential fuel that has not been widely accepted in China as a very low-carbon alternative fuel for the diesel sector. Meanwhile, natural gas has expanded dramatically. The China Automotive Technology and Research Center (CATARC) notes that supply of natural gas has been vastly expanded in China and is no longer a limitation on consumption, with refueling stations in an increasingly comprehensive network across the country, and many public bus systems are increasingly powered by natural gas. However, natural gas vehicles are starting to be displaced by electric vehicles. In 2015, sales of natural gas vehicles fell nearly 30% compared to 2014, and the sales of electric vehicles nearly doubled those of natural gas vehicles. China has established a world-famous push for electrification of the transport system and has rolled out incentives for EV sales and production to varying success. Increasing numbers of urban buses rely on battery electric drive, garbage collection trucks and street sweepers can be powered by batteries as well. Finally, in many cities with license plate restrictions, private EV cars can receive license plates in a priority sequence. China aims to see 2 million EVs sold in 2020, with 25% of auto sales by 2025. The challenge for EV in China is that much of the country's power is still from coal-fired electric power plants. P.R. China needs to undertake vast grid and primary power reform in order to facilitate the transfer to a truly clean EV transport system.

Indonesia	As early as 2008, Indonesia reported beginning to use natural gas for land transportation, especially for public transportation. During the 5th EST Forum, the country stated that 1667 converter kits had been installed, with 450 units planned for 2010. Yet natural gas pricing, supply, investment, infrastructure and public opinion were headwinds to further development. At the 6th EST, an update noted that 400 kits were installed in 2011, and at the 7th EST Forum, the National Implementation Action Plan for GHG Emission Reduction was presented, noting that converter kits would be installed in taxis and public transportation using gasoline at the rate of 1,00 per year in 9 cities. Indonesia's goals and strategies also focused on alternative energies and emphasizing electric and hybrid cars. The UNEP's Partnership for Clean Fuels and Vehicles reports that Indonesia now provides fiscal incentives for EV sales (luxury tax exemption), and infrastructure programmes are underway. Furthermore, the Transjakarta BRT is serviced by 335 CNG buses and 91 diesel buses with recent upgrades to new Euro III or CNG buses. CNG three-wheelers are sold by Bajaj Auto via credit financing scheme to three-wheeler owners. (Clean Air Asia Vehicle Inspection and Maintenance in Asia Policy Profile: Indonesia, 2016)
India	India has made efforts in the alternative fuel and vehicles space. During the 7th EST Forum, it reported that as part of an economic stimulus package, Delhi had improved its bus fleet, the largest CNG bus fleet in the world at the time. By the 8th EST Forum, India reported that CNG supply had extended to more than 60 cities and auto LPG to 270 cities; 5% blending of ethanol had been made mandatory in gasoline, and biodiesel made from non-edible Jatropha oil had been emphasized. Furthermore, future plans at that time included a Delhi-Mumbai corridor with gas highway. In 2015, India established the "Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) (India, Ministry of Heavy Industry and Public Enterprises, March 13, 2015, http://www. fame-india.gov.in/ViewNoticationDetails.aspx?RowId=5) program which offered direct subsidies on the retail price of eligible vehicles.
Japan	Japan has been a world leader in the introduction of new automotive technologies and energies. During the 6th EST Forum, Japan introduced its subsidies for hybrid vehicles, CNG vehicles and clean diesel vehicles, electric vehicles and plug-in hybrid vehicles on the Japanese market. The network of battery charging facilities was also introduced, including signage, online location system, and the CHAdeMO charging standard. Japan introduced the concept of Micro Mobility at the 7th EST forum, including pilot programs, community design and promotion. New vehicle type promotion, especially for EVs was to be done through local government and freight operators with fleets that would induce participation of other municipalities and business operators. During the 8th EST forum, Japan reported that it aimed to see 50 to 70% of car sales in 2030 to be next generation fuel-cell and EVs, and introduced tax breaks and subsidies for creating demand and supporting R&D. Micro mobility was also featured, and development of fuel cell buses, EV buses and fuel supply stations was discussed. During the 9th EST Forum, Japan reported that it had expanded its efforts to fuel cell forklifts and fuel cell waste collection vehicles, and that when promoting new vehicles, reduction in tax and other benefits would be according to the environmental benefits realized by the vehicle purchased. The government also targeted about 100 fuel supply stations derived from renewable energy by 2019.
Republic of Korea	Although Republic of Korea has targeted public transport and NMT as its main strategies for EST, it has also mentioned new vehicle technologies in its plans. The country's report to the 5th EST introduced the benefits and challenges of hybrid cars, biofuels, EVs and fuel cell vehicles, and the government aimed to set safety standards and enact enabling laws and financial support. The 6th EST Forum report described strategies to develop core technologies such as batteries for EVs, construction of more charging facilities, and offering purchase incentives to consumers. Car sharing of EVs was featured in the 7th EST Forum report.
Lao PDR	Lao PDR, with the support of JICA, began a 4-year pilot project focusing on Vientiane and Luangprabang to pilot electric tuktuks with implementation until 2014 (6th EST Forum report). According to the report to the 9th EST Forum, the project was still operating in 2015, with new EV stations constructed, 14 3-wheeled EVs and 2 battery exchange stations, as well as 2 Miletto electric motorbikes. During the 7th EST forum, Lao PDR also noted that clean fuels was part of the EST strategy in the country, but no further details were available. A biodiesel program was introduced in 2011 featuring a B5 blend of palm oil biodiesel, with plans to introduce B10 nationwide. Electric vehicles were on the agenda at the 9th EST Forum for Malaysia, where it described its electric vehicle infrastructure roadmap, and plans to allow EV registration and licensing.

Malaysia	The National Automotive Policy was introduced in 2006 and reviewed in 2009 new policies include promotion of hybrid and electric vehicles and development of related infrastructure. Measures include a number of financial incentives for manufacturers of vehicles. Natural gas vehicles have been promoted since 1989, with 43,078 vehicles on the road (5th EST Forum report). Malaysia's report to the 6th EST Forum clarified financial measures encouraging hybrid and electric vehicles, and described a test fleet of electric vehicles to be implemented in September 2010. And 2000 electric buses would be deployed by 2020. Electric vehicles were on the agenda at the 9th EST Forum for Malaysia, where it described its electric vehicle infrastructure roadmap, and plans to allow EV registration and licensing. The report to the 10th EST Forum indicated that the National Green Technology Master Plan also promotes the use of biodiesel.
Maldives	Maldives has encouraged the use of electric vehicles on many resorts as well as on some smaller islands. It has also eliminated duty for imported electric vehicles, while motorized vehicles have seen import duties increased between 100 – 200%, as reported in the 9th EST Forum. During the 6th EST Forum, it was reported that the National Strategy for Sustainable Development (2009) targeted for not less than 10% of transport fuel to consist of biofuels, with the possibility to increase to 20% by 2020. During the 7th EST Forum, it was reported that biofuels were being tested for boats, and solar-powered boats were being tested by the private sector. However, in a 2015 research paper on sustainable growth, it was noted that no biofuel mandate had yet been applied in Maldives, although it was still on the political agenda (Marcu, Andrei et al. "Country Case Study – Maldives: Climate for Sustainable Growth". November 2015. Centre for European Policy Studies.)
Mongolia	The government reports an initiative for increasing green facilities and transferring public transportation towards natural gas fuels. Under the "Eco-92" initiative Bioethanol has been sold 10% cheaper than imported fuel by PETROVIS LLC and ORGIL Oil LLC since 2009. In 2010, the government stated a goal to provide 30% of all fuel stations in Ulaanbaatar with bioethanol, and to reach a goal of bioethanol sales making up 5 percent of the total fuel market of Ulaanbaatar .(5th EST). The UNIGAS LLC, established in 2004 in partnership with Japanese Sumitomo Corporation, ICHITAKA LLC and New Tel Card LLC placed auto equipment of liquefied petroleum gas next to PETROVIS service stations. Through the Clean Air Fund: 3,5 billion tugrugs was used to replace fuel use of 400 large capacity buses to use liquefied gas, and 500.0 million tugrugs to install toxic smoke filters for 942 small capacity vehicles, 485 large capacity buses and 59 police and security vehicles. (6th EST) The government also reported a goal for January 1, 2012 improve filling station to support only using gas in the majority of buses and convert 400 buses with large capacity to combined consumption of diesel and liquefied gas., and install filters for toxic smoke in 1500 vehicles. (7th EST). There are currently about 15,000 vehicles using LPG in Mongolia (passenger cars and small trucks). However, Mongolia still suffers of poor quality of imported fuel, and no CNG distribution network. (10th EST Forum report)
Myanmar	Myanmar has reported the encouragement of CNG vehicle use city transportation vehicles since the 6th EST Forum, and by the 7th EST Forum, reported that city buses may only run on CNG. The replacement plan was still underway as reported at the 8th EST Form. E-bikes were reported to be in use in Myanmar during the 9th EST Forum. Yangon has implemented a horn-free zone to reduce noise pollution.
Nepal	Nepal has long focused on trying to clean up vehicles. In its report to the 5th EST Forum, Nepal stated that it had a policy to replace old vehicles and upgrade public transport vehicles to low emission or zero emission vehicles. During the 6th EST Forum, Nepal was considering a subsidy for electric vehicles and expressed interest in electric railways to make use of its potential hydropower resources. This trend continued in the 7th EST Forum, with initial preparation of policy and guidelines in the National Transport Policy for electric vehicle support underway. By the 8th EST Forum, Nepal reported that its Eco-Friendly Vehicle and Transport Policy 2014 had been approved/adopted, aiming for EVs or renewable energy-based vehicles to make up 20% of the stock by 2020, and custom duty waived for EVs. At the same time, a November 2014 Cabinet policy aimed to scrap public vehicles more than 20 years old. In the report to the 9th EST Forum, Nepal expanded the EV policy by stating that it encouraged private sector involvement in EV manufacture, but details were not given. Custom duty exception was clarified that duty would be only 10% for electric three-wheelers, and 200% (previously 250%) for buses. Nepal also reported that it was shifting away from mini and microbuses for public transport by prohibiting their registration. In Nepal's report to the 10th EST Forum, it noted that it was developing a tram concept for the capital city, but was challenged in that all

	fuel is imported, meaning that it has little control over its fuel supply, and that there is insufficient electric power supply to ensure adequate electric transportation. These are challenges for the future.
the Philippines	CNG, LPG and electric vehicles have been the focus on technology switching in the Philippines. At the 5th EST Forum, the Philippines reported on encouraging alternative fuels and modes of transport, and had updated its Biofuels Act – including harmonization of biofuel blends (E10). The distribution system for CNG was also being improved. During the 6th EST Forum, it was reported that research was underway to replace diesel jeepneys with LPG motors, and an electric vehicle program focused on battery swapping for jeepneys in Makati city was underway as well as an electric tricycle project. The report to the 7th EST Forum focused on LPG engines for Jeepneys and taxis as well as CNG roll-out for public transport vehicles. Biofuels were also promoted as a non-fossil alternative to petroleum fuels. These programs were expanded upon in the 8th EST Forum report, adding the "Green Frog Zero Emission Transport" program, and the "Green Frog Hybrid Bus". Finally, at the 10th EST Forum, the report focused on ensuring that new buses and jeepneys that are Euro IV compliant, or use clean alternative fuels with better emissions than required; alternative fuel vehicles have been except from the moratorium on franchise applications previous set forth; Senate Bills have been signed to support and promote the use of alternative fuels; A project of the Department of Energy aims to transform the tricycle industry by providing e-trikes. As of early 2016, 3000 e-trikes had been supplied. The 9th EST Forum report saw the tax concession for hybrid vehicles expanded to EVs, with the country aiming to grow the EV fleet quickly. A time of use tariff for EV charging was also introduced. The report to the 10th EST also featured electrification of the rail system.
Pakistan	Since at least the 5th EST Forum, Pakistan has focused on CNG has a favored alternative fuel to diesel and petrol. In its report to the 8th EST Forum, it noted that it was the highest user of CNG in the world, but also that hybrid vehicles were coming to the market. Pakistan incentivized conversion to CNG by supporting a price differential between petrol and CNG, and by 2010 had already 2.4 million CNG vehicles on the road. Pakistan reported that it had the most number of CNG refueling stations in the world in its report to the 9th EST, with 3.5 million vehicles on the road, or about 50% of the 4-wheel population.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	By the time of the 5th EST Forum, Singapore had been trialing diesel hybrid buses, researching fuel cell buses, and had set up an EV taskforce with tax exemptions to facilitate an EV test-bed. The country added a "Singapore Autonomous Vehicle Initiative" to its report to the 8the EST Forum, which assesses the potential opportunities and challenges that the technology offers to Singapore. Singapore will launch an EV car-share program by mid-2017. These programs continued to be reported in the report to the 10th EST Forum.
Sri Lanka	Sri Lanka was already supporting alternative fuels and vehicles at the beginning of the Bangkok Declaration period. At least as early as the 5th EST Forum, the country reported that it would gradually eliminate two-stroke engines, including eliminating the import of engine parts from 2011. The report also noted that biodiesel and hydrogen were being explored. Sri Lanka reported that it would lower taxes on hybrid vehicles during the 7th EST Forum, ushering a world-famous market for hybrid vehicles. Alternate fuels were also mentioned as being promoted. At the 8th EST Forum, data suggested that more hybrid vehicles were registered in the country than petrol and diesel combined. This report also featured a low carbon scenario that would utilize biofuels, and promoted the benefits to the regional economy and new employment through use of biofuels.
Thailand	In 2008, over 60% of Thailand's fuel consumption was diesel, followed by 29% gasoline, 4.3% LPG, and others. By 2013, the vehicle populations of different fuels were 70% gasoline, 25% diesel and approx. 5% LPG and others. However, diesel vehicles operate considerably more frequently than most gasoline vehicles, meaning that fuel consumption of diesel is still likely very high. Thailand has focused on conversion of public transit buses from diesel to CNG, aiming to replace over 3500 buses and engines. During the 7th EST Forum, Thailand reported that biodiesel B5, B10 and ethanol-blended gasoline (E10, E20 and E85) were largely on sale in the market, therefore displacing fossil diesel and gasoline. Stratas Advisors, in its report, "Increased Conversion to Natural Gas Vehicles in Asia – Global Alternative Fuels Webinar, March 17, 2016), reported that in 2016, 3.3% of Thai vehicles operated on natural gas, and this rate had plateaued. But the CNG refueling station monopoly has ended, and CNG prices have been de-

	regulated, meaning there is more possible expansion of this market, particularly if the price of diesel increases over time. Thailand has also approved an electric vehicle policy (National Innovation System Development Committee, 2015), that supports procurement of EV buses and EV bus market development, tax exemption for EV component import that cannot be produced in Thailand, EV import, and EV industry development in Thailand. By 2036, there is a plan for 1.2 million PHEV/BEV vehicles on the road, with 690 charging stations, smart charging and vehicle-to-grid infrastructure. (Global Trend and Thai Policy on Electric Vehicle, Electric Vehicle Associate of Thailand, 1 June 2016).
Timor-Leste	Timor-Leste is dedicating resources to alternative automotive fuels and technologies. During the 9th EST forum, it indicated that biogas and biodiesel were supported, while solar power, hydro power and wind power might be supported to produce renewable electricity. In its report to the 10th EST Forum, the country described a small pilot project to support electric taxis.
Viet Nam	Viet Nam has been a strong supporter of cleaner alternative fuels. During the 5th EST Forum, the country reported on the development of technical standards for blending of ethanol with gasoline and biodiesel with diesel – each of which can improve engine efficiency and reduce fossil fuel dependency. Progress continued, with E5 (5% ethanol in gasoline) fuels being sold in 7 provinces by 2013, and E5 and E10 being made available from December 1, 2015 and December 1, 2017, respectively – displacing up to 5% of fossil fuel demand. At the same time, CNG buses were piloted in Ho Chi Minh City, and electric sightseeing minibuses in Ha Noi, with the aim of 20% of buses and taxis using CNG and LPG by 2020, and 80% by 2050, as reported at the 9th EST Forum.
Goal-9: Set progressive, appropriate, and affordable standards for fuel quality, fuel efficiency, and emissions	
Afghanistan	In 2010, Afghanistan noted that it was subject to very poor fuel quality, but that it had established oil quality control labs at border crossings. In the meantime, the country has introduced Euro 3-compliant fuel quality standards for imported gasoline, matched with a plan for Euro 3 emission standards to be applied to all imported gasoline vehicles. During the 8th EST Forum, it was noted that standards for tailpipe emissions of vehicles would be approved and implemented with private sector participation, but by 2015, the country noted that it lacked vehicle emission test technologies. The most recent update of the PCFV in December 2016 indicates that diesel Sulphur levels are still reaching up to 10,000 ppm, far above limits for Euro-type emission standards.
Bangladesh	As air pollution increased across the country, with transportation identified as a major source, Bangladesh has taken a number of measures to clean up its fuels and vehicles – particularly the introduction of CNG as a major fuel for the country. A roadmap is now in place to reduce sulfur in diesel fuels to 500 ppm by 2016, 350 ppm by 2020 and 50 pm by 2023 – which is certainly improvement from 5000 ppm before 2014. Meanwhile, proposals are in place for nation-wide implementation of Euro 3 for registration of new petrol/CNG vehicles by 2019 (and Euro 4 for Dhaka and Chittagong), and Euro 4 nationally in the period afterwards – and Euro II for heavy-duty vehicles to 2019 and Euro III at some point in the following period. Two-stroke petrol and 3-wheelers have been replaced by CNG vehicles, and the ages of import vehicles have been restricted so as to ensure incoming vehicles are more likely to meet emission standards. Yet to date, there is no evidence of fuel consumption standards for vehicles developed – and this will be an important next step for the country.
Bhutan	Bhutan currently provides diesel fuel of 500 ppm sulfur content – making up 70% of transport fuel in the country. While fuel quality is said to be monitored frequently, it would be ideal to have a plan in place to provide 50 or 10 ppm diesel fuel in the near future to significantly reduce particulate matter and black carbon emissions. Currently, second hand vehicles are not allowed to be imported into the country, ensuring that new vehicles, in principle, are of the best available technology. Between 2004 and 2007, the country made an advance in emission standards, requiring vehicles to meet Euro 2/II standards and making CO emission standards tighter for petrol vehicles, and opacity standards tighter for diesels. The country still lacks a plan progressively tighter fuel quality and emission standards for the transport sector.

Brunei Darussalam	In 2010 at the 5th EST Forum, Brunei Darussalam reported that gasoline-powered vehicles met the Euro 1 and 2 standards, and diesel-powered vehicles only needed to meet the Euro I standard. While at the 7th EST forum, the country targeted having all new vehicles meet the Euro IV standard, according to the UNEP's July 2016 update of the PCFV, Diesel vehicles still only needed to meet the Euro I standard, and petrol vehicles only needed to meet Euro 2. It has been reported that the country plans to meet the 50 ppm Sulphur level in fuels by 2016, but the PCFV suggests that diesel is still supplied at 500 ppm by the end of 2016, and petrol at 1,000 ppm sulphur. Brunei Darussalam is currently planning a fuel economy policy for its transport sector. According to a report released by the Economic Research Institute for ASEAN and East Asia (September 2016), the transport sector currently consumed around 430,000 tons of oil equivalent in 2013, and a proposed fuel economy policy would see fuel consumption rise to only about 490,000 tons of oil equivalent by 2040, a 31.7% reduction from the business-as-usual growth scenario. According to the Compendium of Energy Efficiency Policies of APEC economies (2015), Brunei Darussalam will aim to achieve 17.2 km/l (5.8 l/100km) by 2020 and 21.3 km/l (4.8 l/100km) by 2025 through the introduction of hybrid electric vehicles, electric vehicles, and fuel-efficient vehicles, as well as through the deployment of public transport.
Cambodia	According to the Partnership for Clean Fuels and Vehicles, Cambodia supplies diesel with 1500ppm sulfur, and petrol at 1000 ppm sulfur. The PCFV did not have data regarding emission standards. While stringent emission standards and regulation on air pollution were discussed at the 5th and 6th EST forums, no further information was reported. During the 5th EST Forum, Cambodia noted that old vehicles were still used, that there was an unclear emission limit, and fuels ranged in quality.
P.R. China	P.R. China has put in place an aggressive and systematic set of fuel, emissions and fuel consumption standards. Nationwide, fuel provided for public consumption should meet 50 ppm sulfur for diesel and 50 ppm sulfur for petrol; 10 ppm by 2017. Emission standards are set at China 4/IV nationally, where Beijing requires China V now, and will require Beijing VI and 10 ppm sulfur by 2016, with nation-wide rollout of China V nationwide in 2017. P.R. China's fuel consumption standards are also strict and of world-class. The country currently reports an average of approximately 6.9 l/100 km for cars, with a target of 5.0 l/00 km by 2020. China has also rolled out fuel consumption standards for a variety of commercial and heavy-duty vehicles. Hong Kong SAR is already supplying 10 ppm diesel and 50 ppm petrol, and requiring Euro 5 vehicles. Macao SAR is supplying 50 ppm diesel and petrol, with Euro 4 equivalent vehicles.
Indonesia	According to the Partnership for Clean Fuels and Vehicles (PCFV), average sulfur levels in diesel sold in Indonesia reaches 3500 ppm, although 500 and 50 ppm also available. Petrol is sold at 500 ppm sulfur. Euro 2 vehicle standards mandatory and Euro 4 is under discussion.
India	India currently supplying 350 ppm diesel and 150 ppm petrol, with 50 ppm fuels in 11 major cities. Bharat stage III vehicles are mandatory nationally and Bharat Stage IV in 11 major cities, with Euro 6 equivalent planned for April 2020. (Partnership for Clean Fuels and Vehicles, 2017). The Bureau of Energy Efficiency (BEE) and Power Ministry have developed a fuel economy standard that will come into force in April 2017 that will reportedly become stricter in the 2022-23 implementation phase requiring average emission ratings of 130 gCO_2/km in 2017 and 113 gCO_2/km in 2022, respectively.
Japan	During the 5th EST Forum, Japan reported that its motor vehicle emissions standards were set in consideration of the Air Pollution Control Law, which sets the permissible limits of vehicle exhaust emissions. Limits for NOx emissions for gasoline vehicles were largely implemented by 1978 and made most stringent in 2008. Limits for NOx emission for diesel vehicles have decreased gradually over the same period of time. During the 6th EST Forum, Japan discussed 2016 regulations, aiming for extremely low NOx and PM emissions in accordance with other leading jurisdictions and introduced exhaust regulations for off-road special vehicles. During the 7th EST Forum, Japan introduced its Top Runner Approach to automobile fuel efficiency targets. Japan reported at the 9th EST Forum that it would introduce the WMTC (Motorcycles) and WHDC (Heavy Duty) testing cycles in 2016, and the WLTP (Light duty) in FY2018, along with stricter vehicle efficiency regulations in FY2020. According to the Partnership for Clean Fuels and Vehicles, Japan supplies 10 ppm sulfur diesel and petrol. Euro 5/6 and V/VI equivalent standards are mandatory for new vehicles.

Republic of Korea	According to the Partnership for Clean Fuels and Vehicles, 50 ppm sulfur diesel and 10 ppm sulfur petrol is supplied in Republic of Korea, and new vehicles must meet the Euro 4/IV standards. "Clean Diesel" vehicles have been distributed in the country since 2005, according to the 5th EST Forum report. This goal has not been comprehensively reported on through the EST Forum process.
Lao PDR	During the 6th EST Forum, Lao PDR reported that it is not a member of UNECE convention, though it participates in ASEAN and JASICS meetings. During the 7th EST Forum, the country reported that clean fuels and vehicles are part of its EST strategy, but no further details were mentioned. According to the Partnership for Clean Fuels and Vehicles, Diesel supplied in the country contains 2500 ppm sulfur and petrol contains with 500 ppm. No information was available on vehicle standards.
Malaysia	Malaysia had implemented Euro I standards for diesel vehicles and Euro 2 for petrol vehicles by the time of the 5th EST Forum. The 7th EST Forum report indicated that Malaysia intended to roll out 50 ppm sulfur petrol by 2015, with Euro 4 petrol cars to follow. Euro 3 emission standards for motorcycles were to be implemented in the 2014-2015 period. Malaysia continued to advance its policies through the 9th EST Forum, where it aimed to implement the Euro 4 emission standard for petrol cars by 2018, and Euro V for diesel vehicles by 2020 (Euro 5 by 2025 for petrol cars). 50 ppm sulfur petrol will be supplied by 2018 (currently 500 ppm), and 10 ppm sulfur diesel will be supplied by 2020 (currently 500 ppm sulfur diesel).
Maldives	Information on fuel quality and vehicle emission standards is not available, but the National Strategy for Sustainable Development in 2009 aimed to reduce fleet-average CO2 emissions from light duty vehicles to 140 g/km by 2015. Data is not available on whether this was achieved or not.
Mongolia	According to the Partnership for Clean Fuels and Vehicles, 5000 ppm diesel is supplied in Mongolia, but no information was supplied for petrol. Fuels available are mostly Euro 2 and Euro 3 compliant but no clear national standards for fuel quality or vehicles. Mongolia passed a law that prohibits cars older than 12 years old and taxies older than 10 years old from operating on the road. According to the 10th EST Forum report, Mongolia has decided to implement "Establishment of Plan for Producing Fuel using Domestic Raw Petrol in Sainshand City", funded by a soft loan from India. This project may help the country to produce cleaner fuel domestically. *Mongolia reported in its 10th EST Forum report that it planned to introduce "Eco" labels on road vehicles and improve monitoring of vehicle fuel quality, as well as develop a draft law on custom tax remittal of environmentally non-friendly road vehicles as part of a joint resolution signed between the Ministry of Environment and Green Development, Ministry of Road and Transport, and Ministry of Justice.
Myanmar	According to the Partnership for Clean Fuels and Vehicles, 2000 ppm sulfur diesel supplied in Myanmar, and no information was available for petrol. Petrol is now reportedly unleaded. No information for emission standards was available.
Nepal	According to the Partnership on Clean Fuels and Vehicles, 350 ppm diesel and 150 ppm petrol is supplied in Nepal, given that all fuel is imported from India which is currently at Bharat III standards. Vehicles in Nepal are also rated at Euro 3/III.
the Philippines	According to the Partnership for Clean Fuels and Vehicles, the Philippines now supplies 50 ppm diesel and petrol to the market, and new vehicles must meet Euro 4 emission standards. This initiative was first reported on at the 6th EST Forum. Tailpipe emission standards for CO and HC have been in place since at least the 5th EST. During the 8th EST forum, the Philippines reported that a road transport patrol had been set up to do roadside inspection and to intercept smoke belching vehicles. Furthermore, motorcycle/tricycle emissions testing standards were featured including new emission standards. New motorcycles and tricycles must meet the Euro 3 standard by 2015. A fuel consumption labelling scheme was also mentioned at this meeting.
Pakistan	As Pakistan focused on converting vehicles to CNG, it did not give significant attention to clean fuels and emission standards of vehicles. Pakistan's report to the 7th EST Forum noted that pilot projects were underway for following the Euro II emission standards, but as of December 2016, the Partnership for Clean Fuels and Vehicles indicates that 5,000-7,000 ppm sulfur fuel was being supplied with no information on vehicle standards. The

	report to the 10th EST Forum also indicates that this topic has not yet been addressed. Pakistan mentioned the topic of fuel economy standards in its 9th EST Forum report, but no details were available.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore reported that it aimed to use cleaner fuels and more stringent emission standards for vehicles at the 5th EST forum. It also reported on a performance-based vehicular taxation and rebate concept (fee bate concept) to encourage consumers to buy green vehicles over their conventional equivalents. Singapore updated its fuel economy labelling scheme as well, making the labels mandatory on showroom cars so that consumers can make informed decisions. At the 6th EST Forum, Singapore reported that it would adopt Euro V standards for new diesel vehicles as of 1 Jan 2014, and would supply required 10 ppm (or below) sulfur diesel by July 2013. The report also alluded to future adoption of Euro V/VI and 5/6 emission standards for both new diesel and petrol cars at some point in the future. It also reported that noise standards for new vehicles were tightened in October 2010, and for existing vehicles in 2011.
Sri Lanka	The Partnership for Clean Fuels and Vehicles reported in late 2016 that 2000 ppm sulfur diesel and 1000 ppm petrol is supplied in Sri Lanka, and that Euro 1 standards must be met for new vehicles. Yet the presentation to the 9th EST forum suggested that 10 ppm sulfur diesel was introduced as a premium diesel in 2014, and that 350 ppm sulfur diesel would replace bulk diesel by 2016. It is unclear as to whether this has occurred or not.
Thailand	Thailand has been aggressive in its provision of cleaner fuel and strict emission standards for new vehicles. 50 ppm diesel supplied and 10 ppm petrol. Euro 4 emission standards are required for new cars and trucks, and Euro 5 by 2020 (10th EST Forum). Thailand has demonstrated the economic and health benefits of sulfur reduction in diesel, with the shift from Euro 3 to Euro 4 fuel resulting in savings of up to USD $1.8 billion with less CO, NOx and PM emissions, lower health-care costs and fewer incidences of lung disease and respiratory illness. (http://cleanairasia.org/workshop-highlights/ as viewed on 5 February 2017). Thailand currently regulates fuel consumption using fuel economy labelling, which became mandatory in 2016. The "ECO sticker" label indicates the fuel consumption (on the NEDC cycle) of the vehicle, emission standard, and other information about the vehicle to allow consumers to decide about which vehicle they might purchase. (http://www.theicct.org/apec-vehicle-fuel-economy-labeling) Finally, the label contains information that informs driver about excise tax on the car based on the CO2 emissions of the vehicle. As of 2016, excise tax in Thailand for vehicles is based on CO2 emission rather than engine displacement (http://www.car.go.th/new/Excisecar)
Timor-Leste	According to the Partnership for Clean Fuels and Vehicles, all oil products are imported, no standards noted. However, in its report to the 10th EST forum, the country indicated the need to regulate and control fuel quality.
Viet Nam	Viet Nam has been aggressive in its fuel quality and vehicle emission standard improvement targets. 500 ppm diesel and 500 ppm petrol are currently supplied with a target date for 50 ppm fuels of 2018. New cars and trucks assembled or imported into Viet Nam currently need to meet the Euro 2 standard and the Euro 4/IV standard in 2017 – aiming for Euro 5 in 2022. New motorcycles should meet the Euro 3 emission standard by 2017. Currently, the government has stated that gasoline-powered vehicles should be meeting this standard according to law, but media reports indicate that diesel vehicles may face challenges to meet the standard in 2017, and Euro IV compliant diesel faces supply challenges in the country, and industry has applied for a delay on implementation of these standards. (http://tuoitrenews.vn/business/39417/vietnam-transport-ministry-seeks-delay-to-emission-standard-upgrade). Meanwhile, fuel efficiency of vehicles is currently reported using a labelling system which was implemented for new vehicles which was identified as a priority in 2012, and implemented in 2015 for vehicles with less than 7 seats as reported in the 9th EST Forum.

Goal-10: Establish effective vehicle testing and compliance regimes	
Afghanistan	Afghanistan has been focused on the phase-out of old vehicles at least since the Bangkok 2020 Declaration was made in 2010. This recommendation was found again in its progress report to the 6th EST forum, which was followed up by a very progressive report at the 7th EST forum that annual safety inspections would be mandatory, and that vehicle registration renewal would be tied to standards compliance. The Vocational Training Institute was engaged to train private workshops for vehicle emission testing and certification, with the NEPA and Traffic Department monitoring the performance of those testing workshops. In 2014, it was reported that the I/M mechanism would be implemented with private sector participation, and that policies were being developed to phase out old commercial vehicles. By the 9th EST forum, I/M was included in the Air Quality regulation instrument, and strategies were underway to contract the private sector to undertake I/M work under a PPP frame work – but financial and technological challenges were noted, and the report stated that these policies were still in the design and pilot phase.
Bangladesh	Inspection and Maintenance (I/M) are very important for ensuring that in-use vehicles meet safety and environmental standards. Bangladesh requires routine and period inspection of vehicles including through road-side emission inspection and at inspection stations, although 5 major vehicle inspection stations in Dhaka have been non-functional due to lack of experienced staff and inoperable software. Automation of vehicle inspection has been a goal of Bangladesh for many years, and in 2016, it was reported that fully automated vehicle inspection was kicked off at Mirpur, with the goal of spreading this technology to 62 outlying areas across the country if it is successful. Initially, only buses will be checked at the new centre.
Bhutan	Vehicles need to be tested on a periodic basis for emissions and road fitness, but few details are available on this process and it is not clear if plans are in place to improve this process over time. According to the report to the 10th EST Forum, commercial vehicles such as passenger buses, taxis and trucks must undergo roadworthiness testing every six months, while non-commercial vehicles are once per year.
Brunei Darussalam	Brunei Darussalam has implemented vehicle inspection since 1992 including type approval for new vehicles and periodic inspection for in-use vehicles, annual inspection of vehicles of 7 years of age or more, and inspection every 6 months for heavy vehicles, taxis and buses older than 1 year. During the 7th EST forum, it was reported that computerized vehicle inspection centers were being implemented, and that by 2014/15, all VICs would be privatized through a PPP mechanism. By September of 2016, 11 vehicle inspection centers were operational.
Cambodia	While old and poorly maintained vehicles have been identified as an issue, it was noted during the 8th EST forum that in-use vehicles are not all inspected/maintained, and fuel and vehicle standards are not tied or matched.
P.R. China	P.R. China has implemented inspection and maintenance programs for many years, requiring cars and trucks to meet in-use emissions and operability standards on an annual basis. The Ministry of Environmental Protection operates a yellow label vehicle policy, which aims to phase out yellow label vehicles in certain municipalities, and eventually nationally. In Beijing, as a part of its increasingly tight strategy to reduce air pollution, cars that do not meet "China 3" emission standards are no longer allowed on Beijing roads during smog alerts. Although this policy has received public criticism, it is a means for Beijing to push for cleaner vehicles to be driven. Beijing will eliminate diesel vehicles that do not meet China IV and petrol vehicles that do not meet China 3 emission standards by 2020.
Indonesia	During the 7th EST Forum, Indonesia reported that its National Implementation Action Plan for GHG emission Reduction would target the implementation of motor vehicle inspection at the city/district level. Testing should be undertaken every year, and vehicles that do not meet emission limits should not be allowed to operate. It is unclear if this has been fully implemented. Clean Air Asia reported in 2016 (Inspection and Maintenance in Asia – 2016) that Indonesia's enforcement of emission standards is decentralized, implemented by local police, utilizes some roadside testing with citizen reporting, and fines are collected by government. The system to ensure repair is decentralized, privatized and locally implemented, and government accredits independent inspection centres as well as inspection centers linked to maintenance centers. However, compliance with emission inspection is voluntary in the country, and during the 9th EST Forum, it was reported that due to the voluntary nature of the program, there was little awareness of vehicle owners to do the tests and avoid air quality hazards.

India	India has established emission standards for in-use spark and compression ignition engines, and during the 7th EST Forum reported that it would utilize PPP finance to improve maintenance of urban transport systems, but otherwise has not reported on I/M policies through the EST Forum process since 2010. In 2014, an NGO-sponsored study reported that there was no effective mechanism in India to ensure that vehicles comply with their original emission standards. (Lakshmi CS et al. 2014. Establishing a national in-use vehicle testing programme in India. Shakti Sustainable Energy Foundation. http://shaktifoundation.in/wp-content/uploads/2014/02/National-in-use-vehicle-testing-programme-in-India.pdf).
Japan	Japan's inspection and maintenance system has largely been put in place. At the 7th EST Forum, Japan noted that the government confirms compliance with safety and environmental standards by inspecting vehicles regularly. It also reported that in accordance with the Guideline for Total Emissions Control, some local governments are to implement measures for the emissions of in-use vehicles in order to achieve EQSs at all monitoring stations by 2015.
Republic of Korea	ROK reported in its report to the 7th EST Forum that inspection systems were implemented in 2006 to verify diesel vehicles' exhaust gasses and to verify small and mid-sized truck low-emission engines. The country also promotes scrappage of old vehicles and provides subsidy to install emission reduction devices on diesel vehicles. Other information on the I&M system in Republic of Korea has not been reported through the EST Forum process.
Lao PDR	Vehicle emission control and inspection and maintenance of vehicles was first mentioned as an EST project during the 5th EST Forum, and expanded upon at the 6th EST Forum with a report that a Master Plan on Traffic Safety Park and Vehicle Inspection Centers was underway, based on a 2011 MOU signed between DOT and KOLAO.
Malaysia	Inspection of commercial vehicles every six months has been mandatory since at least the 5th EST Forum. Inspection is performed by Puspakom, a private operator that has been given key performance indicators to meet, ensuring continuous improvement (7th EST Forum report). By the 9th EST Forum, it seems that private vehicles should be inspected regularly, particularly if they are used, and the vehicle registration system was being upgraded. The country noted that I/M program needed to be improved for all fleet operators and service centres/workshops (10th EST Forum Report)
Maldives	Nothing was reported in this Goal.
Mongolia	In 2011 government announced intention to purchase equipment to determine amount of toxic smoke and substances from vehicles. (6th EST) In 2012 it announced 24 vehicle diagnostic inspection centers in all aimags /administrative units/ to control emissions of vehicles and road safety requirements (7th EST). At the 10th EST Forum, Mongolia reported that a laboratory for certification and assurance of vehicle testing equipment was being established in Ulaanbaatar City.
Myanmar	During the 7th EST Forum, Myanmar reported that new cars would be inspected after three years, and every year after that, with the smoke standard fixed at 50% Bosch unit. The country reported at the 8th EST Forum that commercial vehicles should be inspected annually, and the Road Transport Administration Department was conducting an old vehicle scrappage program starting in September 2011. Some cities had installed multi-testing lanes in cooperation with the private sector. Engineers needed to be trained. During the 9th EST Forum, it was reported that vehicles are inspected in accordance with the Motor Vehicle Law of 2015 and the 1989 Motor Vehicle Rules, although absence of motor vehicle by-laws was hindering the process in some places. In the most recent EST Forum report, Myanmar reported that exhaust emission testers were installed in some cities, that engineers were being recruited and trained, computerized vehicle registration and driver licensing systems were coming into place, that ASEAN standards for vehicle emissions were being tested for, and that an RFID system was being implemented.

Nepal	Nepal has reported that it would begin operating Vehicle Fitness Testing Centres since the 8th EST Forum. However, media reports indicate that although facilities have not been built, they are not yet in operation due to lack of trained technicians (http://www.myrepublica.com/news/11171). Clean Air Asia's report, "Vehicle Inspection and Maintenance in Asia: Status and Challenges 2016" notes that vehicle inspection is not linked to registration renewal, meaning that these systems may not be effective for reducing emissions. Nepal noted in its report to the 10th EST Forum that Certificate of Pollution has been implemented, and that plans were under development to test emissions and vehicle conditions every four months for public transport vehicles and each year for private transportation.
the Philippines	The Philippines has reported at each EST forum on I&M progress in the country. At the 5th EST Forum, it reported on rolling out Phases 1 and 2 of a motor vehicle inspection in 11 regional Motor Vehicle Inspection Centers. An Anti-smoke belching drive and "Ligtan Hangin" advocacy campaign were also described. The 6th EST Forum report also focused on I&M – reporting on the setting up of government and private sector-maintained and operated inspection lanes, with Public transport inspection rolling out by January 2014, private vehicle inspection vehicles rolling out by January 2012 and another public transport facility coming online in January 2014. The Philippines reported that 35 lanes were in operation across the country, with aims to expand to heavy motor vehicles, light motor vehicles and motorcycles to all regions and key cities of the country. This task was reported as "complete" at the 9th EST forum, although the 10th EST Forum report listed it as a task underway. The newest initiative is to undertake Motor Vehicle Type Approvals for new vehicles entering the Philippines to ensure road worthiness and standards compliance.
Pakistan	In its report to the 5th EST Forum, Pakistan mentioned educating vehicle and fleet owners on maintenance, promoting phased tune-ups of vehicles and energy efficient driving practices by Transport and Registration authorities, and upgrading of existing Motor Vehicle Examiners into monitoring and service providers, administered by provincial and district governments. The Energy Conservation Fund invested in modern maintenance and repair shops with the private sector. The 6th EST Forum report noted that private sector inspection and certification scheme was being launched, favoring PPP, and phased installation of emission control/tune up equipment on a PPP basis at retail outlets of oil companies. The 7th EST report indicated that inspection and maintenance was largely in place, citing a Punjab Vehicle Inspection and Certification system, the Motor Vehicles Rules of 1969, and National Environmental Quality Standards (NEQS) for exhaust emissions cited. The 8th report to the EST Forum, however, indicated that there was a shortage of skilled workers, lack of equipment and an improperly evolved system in place. The 8th EST Forum reported that the Vehicular Emission Testing Station (VETS) was established in 1997, and is the only financially self-sustainable testing station in the country. Furthermore, three mobile units have worked since 2001 (VETS Peshawar), and the Mingora Station stared in 2005-2005. The EPA plans to establish VETS in DI khan, Bannu, Kohat and Mardan. The update to the 10th EST Forum indicates efforts are still underway, with a Punjab computerized vehicle inspection facility which many bus companies are using, that finance was available to facilitate SMEs to undertake inspection and maintenance, and that emission testing centres in the Federal Capital and four Provincial Capitals were established with the help of GIZ.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore has long had a mandatory periodic inspection system in place, including a chassis dynamometer smoke test in testing facilities as well as roadside visual enforcement. Singapore reported that it was implementing an early turnover scheme to encourage owners of diesel commercial vehicles to replace their old, polluting vehicles with new cleaner models during the 8th EST Forum.
Sri Lanka	Sri Lanka has been testing on-road vehicles at least since the 5th EST Forum, where it introduced its mandatory testing program that is tied to license renewal. 200 vehicle emission testing centers had been given licenses to test. The 6th EST Forum report also illustrated the roadside testing and testing lanes in Sri Lanka, and subsequent reports noted its ongoing operation.

Thailand	Vehicle inspection has long been required for registration and renewal. All cars more than seven years old and motorbikes older than five years are to be tested every year for roadworthiness. Testing centers are privately owned and certified to give certifications. Inspection and maintenance programs use the new automotive emission standards as reference, but as reported to the 7th EST Forum, vehicle inspection for license renewal is decentralized and therefore difficult to ensure quality. More recent data is not readily available. The 10th EST Forum Report noted that although standards are in place, they are difficult to implement by inspection centers.
Timor-Leste	During the 9th EST Forum, Timor-Leste reported that it had prioritized facilitating conditions and regulations for vehicle importation, especially new and second-hand cars produced in the last 5 years, but no details on testing were indicated.
Viet Nam	With the development of more stringent emission standards for vehicles in Viet Nam, it was reported during the 7th EST Forum that inspection stations were being built, and by the 9th EST Forum reported that a network of over 100 inspection stations to perform safety and exhaust gas examinations for in-use automobiles had been built. However, reports including the "Energy Efficiency and Climate Change Mitigation in the Land Transport Sector" report by the ASEAN-German Technical Cooperation noted that equipment at these stations was often poorly calibrated, test procedures were outdated, and inspectors had limited capacity, thus limiting the effectiveness of this inspection and maintenance regime.
Goal-11: Adopt Intelligent Transportation Systems (ITS)	
Afghanistan	Afghanistan has not identified a strategy for adoption of ITS
Bangladesh	Bangladesh has been upgrading its systems to allow for a greater role of ICT in its transport systems. Selected bus and rail routes accept electronic payment with smart cards, digital number places and smart card driver's licenses have been introduced, electronic toll collection systems have been introduced and variable messaging signs have been introduced in Dhaka city. The country aims to operate the MRT line 6 and BRT line 3 on a full ITS system, and manage 4 major junctions electronically in Dhaka city for better traffic management. Yet many challenges remain – lack of infrastructure is a nagging problem, and existing operators of public transportation and toll booths resist change. In its 10th EST Forum report, Bangladesh noted that traffic information is on the radio in Dhaka, ETC has been installed on major bridges, and a central traffic control station is in place. In order to facilitate electric fare systems, a clearing house at DTCA has been established.
Bhutan	ITS is a challenge for Bhutan at this time, and as of 2015, it was reported that the use of ITS in all forms is non-existent. The Bhutan Transport 2040 Integrated Strategic Vision indicates that efforts should continue in developing ITS for improved road safety, but no details are available.
Brunei Darussalam	Network Management and Control System (NMCS) under the Intelligent Transport Systems Implementation Plan will provide the overall picture of travel conditions, respond to accidents, incidents and other disruption and provide real-time information to users and agents. The plan also includes Brunei Transport Management and Control Centre (BTMCC) and integrating fares, ticketing and payment collection with the plan capital cost set at $13 million. Other ITS-related programs include the implementation of speed warning devices on commercial vehicles, which are mandatory. These devices allow a driver to be fined for speeding.
Cambodia	No specific mention of ITS or related technologies and practices were mentioned in Cambodia's reports to the ETS Forums.
P.R. China	Cities in the P.R. China are increasingly integrating information platforms including GIS, traffic information, traffic and public transport information, policies, etc. Governments and private companies alike are pushing information to transport users through real-time telematics and guidance systems for cars and trucks, digital maps and other municipal services. Chinese cities make vast use of video camera data, cell phone data, big data analysis and other technological systems to monitor, predict and manage traffic to improve efficiency and functionality of the transport system.

Indonesia	During the 6th EST Forum, Indonesia reported that ITS is a strategic initiative for EST in the country, focused on optimization of traffic management, electronic toll collection, support for pedestrians with electronic controls and support for public transport through BRT priority. This strategy was strengthened through its inclusion in Indonesia's National Action Plan for GHG Emission Reduction – it's NAMA, where it specifically aimed to construct as many as 13 packages for intersection coordination, giving buses priority at intersections, and shifting more trips from private vehicles to public transport. ITS is also a key component of objectives such as parking management and congestion charging and road pricing. By the 9th EST Forum, it was reported that ITS would be adopted for electronic road pricing in Jakarta. During the 10th EST Forum, Indonesia reported that 28 cities had implemented ATCS, while Jakarta, Tangerang, Bogor, Depok and Bekasi have implemented ATCS but are not yet interconnected. This will happen according to the Mater Plan Transportation Greater Jakarta.
India	ITS is a focus of India's National Urban Transport Policy (2006), and from a national perspective, is encouraged to integrate multi-modal systems (6th EST Forum). India has established Standard Service Level Benchmarks for ITS facilities in urban transport, and has established a core group on ITS. During the 7th EST Forum, India reported that buses for city transport would contain ITS features, and that ITS for traffic management toolkits were under finalization. The EBTC (2012) identified development of the Golden Quadrilateral (connecting Delhi, Mumbai, Chennai and Kolkata) as a growth opportunity for automated technologies, and that New Delhi, Bangalore and Pune were utilizing standalone ITS applications such as automated parking systems, electronic toll collection, automated traveler information systems and intelligent signal control. (ebtc.eu/pdf/120913_SNA_Snapshot_Intelligent-transport-systems-in-India.pdf)
Japan	ITS has been an important part of Japan's transport system for many years. At the 5th EST Forum, Japan reported that vehicles have integrated on-board car navigation systems including road-to-vehicle two-way communication to allow cars to receive information, make payments, navigate and offer new future services. The "Smart Way" Service offers congestion and blockage information to drivers to improve safety and driving efficiency. The service started in 2009. The service also facilitates more efficient logistics. At the 6th EST Forum, Japan reported on ITS Spots, which provide 2-way communication with Smart Ways, and reported that there were 1,600 ITS spots nationally. By the time of the 8th EST Forum, Japan reported that it was using ITS spot data to introduce ETC 2.0. The country was also demonstrating advanced support for idle reduction by optimizing traffic light timing.
Republic of Korea	Republic of Korea's ITS development plan was reported during the 6th EST Forum to focus on TDM, in the form of ITS for road management, encouragement of "high-pass" electronic toll collection, and an integrated transport information center. This was expanded upon in the country's report to the 7th EST Forum, where it described that ITS facilities would be expanded to include ramp metering and monitoring of all national highways and cities nationwide. A pilot project called "Building Smart Highway, R&D, Technology development" was undertaken, and "High-Pass" ETC was expanded to improve traffic flow. The country aimed to undertake a national project to build Advanced Traffic Management Systems and Traffic Information Centers at local governments, and to expand ITS infrastructure on national highways and urban roadways to 500 miles by 2013, with connections to major "u-City" building projects. During the 9th EST Forum, Republic of Korea reported that it would improve traffic signals for better trips, and maximize the use of ICT for better TDM.
Lao PDR	Lao PDR noted during the 7th EST forum that a preliminary survey on ITS was completed in 2012.
Malaysia	Malaysia began reporting on ITS at the 7th EST Forum, discussing information distribution via radio, TV, SMS and smart phone applications. It aimed to roll out public transport operator monitoring system, a journey planner and integrated cashless payment systems the next year. Until the country's report to the 10th EST forum, there were no further updates, but the country now reports that the Ministry of Works plans to establish an ITS management center, and real time information systems are being rolled out through the Journey Planner app.
Maldives	Although some ideas have been discussed at previous EST forums for ITS systems, such as mobile phone based reservation systems, it is not clear that these have been implemented. Little other information on ITS systems in Maldives has been reported.

Mongolia	In 2016, the Asian Development Bank (ADB) announced it will finance $500K for policy and advisory technical assistance (PATA) for an ITS development plan for Mongolia. The main objective of the technical assistance (TA) is to identify ITS service needs to improve road safety management and operation. The TA will cover an ITS development and implementation plan for urban and regional road transport, public transport and logistics, ITS architecture and standards for future integration, and interoperability of the systems implemented. In 2016, national standards on toll gates, transport control centers and service facilities along main roads was approved, and a smart card electronic fare collection system was introduced in Ulaanbaatar city public transport. (10th EST Forum Report)
Myanmar	Planning was underway during the 7th and 8th EST Forum periods, but by the 9th EST Forum, Myanmar reported that CCTV cameras had been installed to control traffic major cities such as Mandalay and Yangon, periodic announcements of the traffic situation were made over FM radio in Yangon, and a "b-Smart" system had been installed along the Yangon-Nay Pyi Taw-Mandalay highway. The 10th EST Forum report revealed that telematics were being used and controlled by the traffic control center to monitor the safety of passenger coaches on the Yangon-Mandalay Expressway, and Yangon City was implementing a central control center to monitor traffic flow.
Nepal	Nepal began reporting on ITS development during the 8th EST Forum when it described that it would implement embossed number plates and smart card driver licenses and blue books. The report to the 10th EST Forum noted that traffic management is a component of the Kathmandu Sustainable Urban Transport Project, and media reports indicate that ITS systems would be installed at 26 major junctions at 37 points throughout Kathmandu to better manage traffic. (http://kathmandupost.ekantipur.com/news/2016-05-24/kathmandu-to-adopt-intelligent-traffic-system.html).
the Philippines	The Philippines has focused on public transport in its ITS reporting for the EST Process. During the 7th EST Forum, it was reported that a contactless and integrated automatic fare collection system for LRT lines 1 and 2 and MRT 3 was under development, replacing single journey and stored value tickets. By the 9th EST forum, this task was fully completed, and was starting to be rolled out to some bus lines. A transportation database was also under development during this period. At the 10th EST Forum, the Philippines is reporting that an online application with real-time traffic updates in Metro Manila is being developed including 10 major routes.
Pakistan	By the 7th EST Forum, Pakistan reported that an ITS surveillance system on intercity roads was in place, and an ITS-based traffic management model was developed for Karachi. At the 8th EST Forum, Pakistan reported that Lahore metro fares would be collected electronically, that real-time user information was provided, and that the Islamabad metro would also improve its ITS system in this way. Pakistan's report to the 10th EST Forum indicates that electronic fare systems will be used on all 5 BRT systems, as well as on railways and electronic user charge system on all motorways expressways and highways.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore's ITS has been in place since 2014, relying on a number of technologies including a parking guidance system, electronic regulatory signs, junction cameras, expressway monitoring and advisory system and signalized pedestrian crossings had been installed to help manage road use to meet diverse needs, enhance travelling experience with smarter interactivity, create a safe and secure roadway environment, and envision a sustainable and environmentally friendly ITS. The program is called "Smart Mobility 2030". Singapore also has launched MyTransportSG, a smartphone app that provides real-time information on bus arrival times, traffic conditions and news and road pricing rates.
Sri Lanka	Sri Lanka's ITS efforts were first reported at the 7th EST Forum, indicating that the country desired to automate toll gates and implement electronic fare collection systems. Sri Lanka's report to the 9th EST Forum indicated that the country would undertake further ICT development and integrate it with the transportation system, and in the country's 10th EST Forum report, Sri Lanka noted that buses would be fitted with GPS tracking systems and electronic toll collection systems would be rolled out as they had received policy approval.

Thailand	Thailand is adopting an ITS strategy to increase safety and mobility of travelers and the movement of goods. Traffic information platforms were reported during the 7th EST Forum, allowing passengers and drivers to plan their routes and avoid traffic. Online freight platforms have been utilized and are enjoying increased promotion by the government, as reported during the 9th EST Forum, and Single Window e-Logistics is being developed to improve import-export border processes and reduce truck idling at borders. In 2014, traffic control systems had been employed in 6 cities, with plans to expand to more cities in the future, and bus route information was available from internet and mobile devices. Thailand has comprehensive digital maps of many of its cities, allowing for more data layers to be included for communicating to transport system users.
Timor-Leste	Timor-Leste has not yet reported on ITS through the EST Forum process.
Viet Nam	ITS is being implemented in Viet Nam, and the country is becoming more aware of the benefits of an ITS system. Smart cards for public transport were investigated for Ha Noi as reported during the 7th EST forum, and digital mapping projects were reported for the 8th and 9th EST Forums, and by mid-2012, black box devices were required to be installed in trucks and passenger vehicles to better manage transport systems and ensure proper records of vehicle behavior have been kept - by 2016, media reports indicated that in 2016, vehicles with a capacity of 7-10 tons would have to install black boxes before 1 January 2017, as well as trucks with 3.5 – 7 tons. Black boxes were also to be installed on garbage trucks in HCM City to supervise trash management. While these were policies in the past, media reports indicate that they will be strictly enforced from July 2016. http://www.thanhniennews.com/society/black-box-rule-could-face-enforcement-snags-2292.html. Meanwhile, it was reported during the 8th and 9th EST forums that Viet Nam had implemented some highway ITS management, including video monitoring and other technologies.
Goal-12: Achieve improved freight transport efficiency	
Afghanistan	By the time of the 9th EST forum in 2015, Afghanistan had not identified strategies for improved freight efficiency
Bangladesh	A key strategy for improved freight transport in Bangladesh is the use of waterways. Ashuganj River Port has been declared a port of call, and the Patgaon inland port connects Chittagong sea port. Dredging is undertaken at river ports, landing stations and channels to ensure navigability. Rail freight is being encouraged across the country as well. Linkages are expected between the east and southwest zones of the country by 2020, and Bangladesh Railway will be linked with international rail networks. Yet highways are still heavily relied upon for freight transport. In the road freight sector, greater organization of the freight industry has taken place. Some container terminals and depots are in operation to increase containerized freight traffic, and private sector logistics companies have emerged. The concept of green freight has been adopted at a national level, but work needs to be done to define how it will be implemented. One city, Sylhet, reported that it had constructed a central truck terminal in order to centralize activities of trucks that were entering the city. In its 10th EST Forum report, the country noted that Green Freight had been adopted as a concept at the national level, that a number of container terminals/depots were in operation, and an increase was observed in the number of containers used by private and public operators.
Bhutan	As of the 9th EST Form, the freight sector in Bhutan was largely private and unregulated. However, with discussions of rail connection to India ever on the agenda, there has been more discussion of inland container depots and dry port construction to serve a future with more complex logistics services for the country.
Brunei Darussalam	Brunei's report to the 7th EST forum mentioned plans to upgrade the road network for more efficient freight transfer, and the Brunei Land Transport Master Plan expands on this through Policy EC5, which would see the establishment of a Strategic Freight Network by 2025, improving access to industrial areas and international gateways, ensuring diversion of freight from urban centres, residential areas and other sensitive locations, as well as incorporating supporting facilities such as vehicle parking, servicing, and navigation. The Plan also mentions the enabling of multi-modal mobility for freight and even the possibility of an inter-district railway line to supplement the Coastal Highway route that could also support freight movement. Action on this plan has not been reported in the media.
Cambodia	No specific mentions of initiatives to improve the efficiency of freight movement have been made in Cambodia's reports to the EST Forum process.

P.R. China	China has made efforts to make its goods transport more efficient and cleaner. In addition to a continuous improvement of vehicle emission standards and retiring of old, dirty and inefficient freight vehicles, and upgrading of fuel quality, China has implemented drop-and-hook pilot projects that allow for more efficient loading and unloading of trailers and avoidance of engine idling, established the China Green Freight Initiative under the Ministry of Transport (aiming to promote clean technologies and practices in China, Chinese freight transport companies have been certified under the Green Freight Asia label, established a green technologies catalogue under the Ministry of Transportation, established electronic freight exchanges, undertaken pilot projects in green freight technologies such as higher quality tires, lightweight trucks and trailers and aerodynamic equipment. Yet there is still resistance on the part of the private sector to invest in efficient and clean technologies, and hesitance on the part of the government to subsidize these technologies and practices, leading to an impasse that has yet to be overcome on a broad basis. The Chinese government also has yet to reform its laws and standards with respect to trailer and vehicle sizes – often, efficient technologies and practices change the dimensions of a trailer or vehicle slightly, and without flexible operational standards, these technologies would violate road safety laws or standards.
Indonesia	Indonesia has been known as having some of the least efficient logistics in the world, with the cost of logistics as high as 24% of GDP, compared to 7 or 8% in developed economies. Green freight and logistics has been reported as part of Indonesia's urban EST strategy, including a Freight Improvement Programme, but few details have been reported through the EST Forum process. In November 2016, the World Bank approved a $400 million loan for logistics reform (http://www.worldbank.org/en/news/press-release/2016/11/02/indonesia-400-million-approved-for-logistics-reform) and the government has reportedly opened the logistics sector to foreign investment, with the aim of reducing its logistics costs to 19% of GDP by 2020 (http://jakartaglobe.id/business/indonesia-logistics-costs-can-match-asian-peers-two-decades-roland-berger/).
India	India's National Transport Development Policy has a focus on freight-related planning interventions to ensure a sustainable modal mi, and during the 9th EST Forum, India reported that it had planned construction of more expressways and dedicated rail freight corridors for more efficient freight movement. Significantly, India has established a government enterprise called the Dedicated Freight Corridor Corporation of India, which undertakes planning and development, mobilization of financial resources and construction, maintenance and operation of dedicated freight corridors (http://dfccil.gov.in/dfccil_app/Home). India will build dedicated freight-only rail lines connecting Delhi, Mumbai, Chennai and Kolkata with World Bank support that will not only improve speed, but by using electric power may also reduce GHG emissions. (https://www.worldbank.org/en/news/feature/2017/02/07/green-signal-faster-development-indias-new-freight-corridor).
Japan	Japan began reporting on freight in the context of reconstruction after the Great East Japan Earthquake. At the 6th EST Forum, it reported that railways were recovered in an integrated manner and by using existing facilities, and disaster prevention functions were added to transport and logistics facilities. At the 7th EST Forum, Japan reported that it had an Act on Advancement of Integration and Streamlining of Distribution Business, and furthermore provided funding for implementation of large CNG trucks to transport operators through the Model Program on Low-Carbonization of Mid-Range Distribution Transport. Japan reported at the 10th EST Forum that the Act mentioned above was revised. The revised law focused on potential labor shortage, and potential solutions, for example, modal shift from truck to rail or ship, and improvement of one-stop procedures to limit time and resources spent on paperwork. (http://www.mlit.go.jp/report/press/tokatsu01_hh_000248.html)
Republic of Korea	Republic of Korea enacted its "Sustainable Transport and Logistics Development Act" in 2009, providing a basis for greener goods transport. The country aims to shift freight to rail and coastal shipping using subsidies (5th EST Forum), reduce port facility rental fees, establish green ports, identify and spread exemplary cases of CO2 reduction with a green logistics certification system (6th EST Forum), improve port logistics information systems and revise port logistics automation system information regulations and set up RFID-based logistics systems and IT-based marine transport information system (7th EST Forum).

Lao PDR	CO2 reduction on freight transportation was a topic of discussion by Lao PDR at the 6th EST Forum, where it reported that digital tachographs (black boxes) were installed on 2 small trucks for 3 months as a pilot project with the support of the Ministry of Economy, Trade and Industry of Japan. According to the Lao PDR report to the 7th EST, transport logistics are a theme of the Land Transport Master Plan in Lao PDR, and a comprehensive study on the logistics system in Lao PDR was carried out with the assistance of JICA.
Malaysia	Malaysia has focused on improvement of efficiency of ports operation, national single window to reduce bureaucratic time, electrified double track rail, and port and logistics solutions in Westport (7th EST Forum). By the 9th EST Forum, seminars on eco logistics were being delivered to freight operator. In its report to the 10th EST Forum, Malaysia has featured its National Logistics Masterplan, with 5 strategic shifts to improve logistics and trade facilitation.
Maldives	No information has been reported by Maldives at previous EST forums on concepts for more efficient goods movement. There is increasing awareness that freight vehicles are causing congestion in Male, and strategies may be needed to relieve congestion.
Mongolia	*Existing International air operations for Ulaanbaatar will be relocated to Zuunmod (New Ulaanbaatar International Airport) 50km south of the central business district by Q1 of 2017 with a direct air to freight line. **Southern Bypass* In the 2030 UBMPS the corridor unpaved roads to the south of Bogd Khan mountains will be developed as a southern bypass of the city centre road network and giving direct access to the logistic centres at Zuunmod, proposed new international airport and the western suburbs. Presently freight operations account for approximately 75% of available train paths on the single track line. If the southern freight bypass is constructed, the number of available train paths for local passenger service within Ulaanbaatar will increase significantly. *With support from the Asian Development Bank (ADB) Mongolia will build a state-of-the-art road/rail linked logistics facility in Zamiin Uud. The new terminal will have modern customs and quarantine facilities and road and rail access which will reduce transit times, expand capacity and improve staff productivity. Originally scheduled for completion in 2015, the center is now slated for a 2018-2019 completion. *A logistics center was established at the Zamyn-Uud border crossing with China.
Myanmar	According to the 9th EST Forum report submitted by Myanmar, inland ports were being planned including the purchase of new inland vessels, improved navigation channels, navigation aid equipment along rivers, upgraded rail infrastructure and the use of new cargo trucks from cities to other regions and states. The 10th EST Forum report describes plans to create container handling capacity along inland waterways, and Myanmar Railways is inviting the private sector investment for freight transportation including container freight and fuel trains.
Nepal	While freight transport was not addressed in earlier EST Forums, by the 8th EST Forum, Nepal reported that it had established Integrated Check Posts at key border areas to facilitate faster freight transfer, and a dry port had been built at Larch along the Nepal-China border to be opened in 2016 in order to facilitate more efficient truck use there. While in Nepal's report to the 10th EST Forum, it stated that no action had been taken yet, it noted that in the coming years, freight would need to be made more affordable and the syndicate system of freight equipment ownership and management would need to be abolished in order to make orderly progress.
the Philippines	The Philippines began reporting on freight at the 9th EST Forum, focusing on the Davao Sasa Port Modernization Project. This has been followed up in its report to the 10th EST Forum with a report on the development of the National Logistics Master Plan, led by the Department of Trade and Industries. The Philippines also aim to carry out an Efficient Freight Management ICT system in the coming years.

Pakistan	Pakistan's first mention of freight practices was at the 6th EST Forum, where it stated that minimizing freight transportation would have moderate transportation effects, compared to improving fuel economy and minimizing commuting to work and school. It's 7th report to the EST Forum noted that administrative restructuring and infrastructure for the development of Pakistan rail, developing loading/unloading points, and driving market reform in the agriculture goods transport sector were underway. Although the mode share of rail was extremely low in Pakistan for freight (4%), rail was being upgraded and promoted for long haul, as presented at the 8th EST Forum, along with incentives provided for more efficient, multi-axle trucks. At the 9th EST Forum, Pakistan reported on its National Trade Corridor Program from 2000 that aimed to upgrade capacity and extend the network of national highways along the trade corridor, which if implemented would result in 50% reduction in travel time, 10% decrease in road transport costs, and 70% reduction in road fatalities. Pakistan also reported that train traffic was increasing, with a 5 times increase in trains setting off from ports than from two years prior (2 trains to 10 trains). Pakistan's freight sector upgrades were taking shape in its report to the 10th EST Forum, where it reported that the old trucking system was being replaced, and a complete renovation of railways including track, engine and blocks was near completion. Regulations were also being developed and enforced regarding vehicle dimensions and other standards.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	The government of Singapore did not report on this goal through the EST Forum Process.
Sri Lanka	Sri Lanka aimed in its 5th EST report to shift more cargo from road freight to rail freight in order to improve environmental performance, as well as to make better use of inland waterways. During the 9th EST Forum, Sri Lanka reported that private sector companies were forming networks so as to realize economies of scale in their operations, and in its report to the 10th EST Forum, Sri Lanka reported that procurement of container carriers was underway, continued dry port construction was being investigated and preliminary work for new railways had begun.
Thailand	Thailand has proven to be a key partner for Green Freight in Asia. The country is a participant in the Greater Mekong Subregion Core Environment Program of the ADB, and has strong industry associations, such as the Federation of Thai Industries, to support policy development and implementation through training of drivers and transport companies. A green freight project was started as reported during the 7th EST Forum. In 2015, Thailand launched a Green Freight Initiative to work initially with 15 small to medium-sized truck companies to improve their fuel efficiency by financing and testing technologies, eco-driving and improved logistics management. (http://www.gms-eoc.org/news/thailand-looks-to-green-freight-for-economic-and-environment-gains). In 2016, the country undertook a Logistics and Transport Management Project as well as a Logistics and Transport Management Application (LTMA) Project to improve freight efficiency, and plans to promote LTMA software, transport energy management systems and logistics ESCO financing to freight companies in the 2016-2021 period. Thailand currently has a target to encourage 200 freight companies to improve their energy efficiency, educate 400 drivers about eco-driving and defensive driving, pilot a transport energy management system in 100 freight companies, and establish an ESCO mechanism to provide assistance to road transport companies. Furthermore, all trucks are to have GPS installed by law. Plans are in place to begin using such data for energy-saving purposes. (http://www.gms-eoc.org/uploads/resources/955/attachment/Day%201-Green-Freight-Thailand.pdf)
Timor-Leste	Freight, especially for import and export functions, is being addressed in Timor-Leste. During the 9th EST Forum, the country reported that it sought to engage private sector participation to facilitate trade, and the report to the 10th EST forum contains plans to construct a port and airport on the southern coast, implement an Oecuse special zone maritime transportation system, and upgrade Dili airport and new port.

Viet Nam	Viet Nam is a key partner for Green Freight in Asia. With goods transport volume increasing year on year, infrastructure has come into focus, as well as vehicle quality. During the 7th EST Forum, Viet Nam reported that it had begun a green freight transport project, with the Greater Mekong Subregion Core Environment Program of the ADB. Viet Nam has participated in the Climate and Clean Air Coalition's Global Green Freight Action Plan program, and has undertaken workshops in green freight with many international partners, and released a number of high-level decisions to focus on the logistics industry including: *Decision of the Prime Minister number 169/QĐ-TTg dated 22 January 2014 on the development of logistics service in transport sector to 2020. *Decision of the Prime Minister number 318/QĐ-TTg dated 04 March 2014 on the strategic development of transport service up to 2020 and orientation to 2030. Workshops on eco-driving, as well as long-term goals for an East-West Economic Corridor have supported these efforts. By 2016, it was reported that the Department of Roads of Viet Nam had established an action plan for developing Green Freight Transport including: · Improvement of online freight exchange · Develop eco-driving materials and integrate them in national driving curriculum · Develop a mechanism and regulation for labelling Green Transport · Build capacity of official staff and policy makers to develop green freight · Encourage private sector to participate in green freight · Enhance awareness by community and enterprises. (Updates of Green Freight Initiatives in Asia: Viet Nam Country Report. Regional Workshop on Green Freight and Logistics in Southeast Asia, June 2-3, 2016, Bangkok)
Goal-13: Adopt a zero-fatality policy	
Afghanistan	Road safety is an important initiative in Afghanistan's transportation planning. In the 6th EST forum, the country reported that it was planning and improving road lighting, and has reported even greater ambitions in following EST forums including strict regulations to enforce driver licensing and insurance and standards in road design and construction, and working on speed control for roads. It has been noted that Kabul does not have traffic lights, but it is unclear if this situation has been improved upon in the following years.
Bangladesh	Bangladesh has a National Road Safety Council, an accident research institute at one of Bangladesh's top engineering universities, the country has updated its road transport policy – including an axle load control station operation policy, and vehicles are regularly inspected. 209 black spots have been identified on national highways, and a road safety action plan was put into place from 2014-2016. Trauma centers have been established near highways to assist with post-collision care, and doctors and paramedics are trained to handle road transport injuries. Although driver training is carried out by numerous regulators and service providers, Bangladesh still suffers from fatalities due to inadequate awareness of transportation safety, and poor habits of vehicle drivers and pedestrians alike. Sylhet City is attempting to raise awareness among residents about traffic rules, and cooperating with police to improve enforcement of traffic laws. The City observed significant reductions in traffic accidents between 2007 and 2014.
Bhutan	Transportation accidents are still a major public health concern in Bhutan. Although the country has implemented policies for zero tolerance traffic violations on Fridays, and has rolled out activities under the Road Safety Decade Action Plan (launched in 2011), aiming for less than 5 fatalities per 10,000, the 2040 Road Safety Strategy aims for a much more comprehensive plan including establishment of a road safety board, developing a road safety action plan, improving road design, and other key steps. During the 9th EST Forum, Bhutan claimed a major win from its road safety plan, with the number of motor vehicle crashes steadily declining year-on-year, and the number of injuries declining from 2011 as well, with fatalities below their maximum level in 2011.

Brunei Darussalam	With an increasing auto population, Brunei Darussalam has increased traffic fatalities. As a result, in its 7th EST Forum report, it reported amendments to Road Traffic (driving license) regulations, ensuring that commercial drivers much have a Class 3 driving license for at least 1 year and be 21 years of age or older. The driving curriculum was improved, bus drivers are required to attend Defensive Driving courses, and training and test driving facilities have been added or upgraded. In 2013, a demerit system was implemented to identify high-risk drivers who may cause danger to other road users. Finally, speed warning devices were required for commercial vehicles. The Sultanate noted that in 2013, it would implement interchanges and traffic calming measures but noted that finances and infrastructure and facilities still created challenges.
Cambodia	Throughout the EST process of the Bangkok 2020 Declaration, road safety has been a major recurring theme for Cambodia. In 2010, road conditions were noted as poor, with poor infrastructure and maintenance. Driving without helmets, and distracted driving was mentioned, along with overloading of commercial vehicles, and 4.8 traffic fatalities per day reported. Campaigns focused on helmet and mirror use by road users, seatbelt use, road sign respect, speed enforcement by police, and alcohol testing at night. By the time of the 9th EST forum, the road traffic death rate was 14.7/100,000, with speeding and drink-driving being the leading causes of death, and data suggesting that as the number of registered vehicles increased steadily, road deaths per 10,000 vehicles decreased, from 18.1 in 2007 to 7.9 in 2015. Yet compared to Lao PDR and Vietnam, Cambodia still suffered more road deaths as a proportion of population and vehicle proportion. By the 9th EST forum, Cambodia had identified major times and locations of traffic fatalities, and emphasized that young people are a growing group of victims of this preventable tragedy. Cambodia has undertaken new social marketing campaigns, workshops, and awareness raising of drink driving risks and helmet wearing, and in January 2015, rolled out a new road traffic law mandating helmet use, and increasing fines significantly for riding motorcycles without helmets and drink driving. Faced with a tragedy, Cambodia is scaling up its efforts through enforcement, motorcycle safety clothing, data collection on alcohol and drink driving, and legislation and tax policy.
P.R. China	The World Health Organization reports that over 58,000 people are killed every year due to road traffic crashes (2015), and this is the leading cause of death for people aged between 15 and 44 years of age. Pedestrians, motorcyclists and cyclists account for a majority of those fatalities. The introduction of e-bikes in China has been very good in terms of reducing emissions, but with no official recognition of the status of e-bikes, little or no training or licensing for e-bikes, and rapidly increasing commercial use of e-bikes and e-three-wheelers for delivery where speed is demanded, fatalities and injuries are increasing dramatically. Speed and drink-driving, however, are still the primary risk factors. China has set a goal to reduce road fatalities by 32% (per 10,000 vehicles) by 2020. Dalian and Suzhou have been identified as pilot cities for implementation of the RS10 Road Safety initiative funded by Bloomberg Philanthropies that aims to reduce speeds and drink-driving through targeted enforcement, increased penalties, public awareness and better laws.
Indonesia	Indonesia experiences a high rate of road-related fatalities, and has acknowledged this risk in its EST forum reports. Safe driver training has been implemented in Indonesia for public transport drivers at least since it was reported at the 6th EST Forum. During the 9th EST Forum, Indonesia reported that it would establish a zero-fatality accident roadmap, but it is unknown if this has been released. In its 10th EST Forum report, Indonesia noted that it was implementing its National Plan of Road Safety (2011, 2035), Established a zero-fatality accident road map, and was operating an Indonesia safety driving centre.
India	Safety has been reported on since the 6th EST Forum by India in the context of the Bangkok 2020 Declaration. The National Transport Development Policy – Urban Transport identifies safety as an aspect of focus for its 2030 aspirations. India's report to the 7th EST identified that Road Safety and Safety audit toolkits were under finalization, that road safety Standard Service Level Benchmarks were in place, and recommended that a commission be established for urban transport safety, ensuring multi-departmental action. According to the Global Status Report on Road Safety 2015 (World Health Organization, 2015), India had achieved "best practice" legislation for seat-belt implementation, the Government has pledged to apply UN-equivalent crash-test standards for front and side impact in two phases for passenger cars, the World Bank has established a minimum three-star target for all road users as part of new road design, but the country had not set targets for road fatalities or non-fatal accidents (p. 310). During the 9th EST Forum, India reported that accident rates and road fatalities remained high.

Japan	During the 5th EST Forum, Japan reported that traffic fatalities had fallen below 5,000 for the first time in 57 years after falling for nine consecutive years. This decrease was attributed to seat-belt laws, eradication of drinking and driving, promotion of eco-driving, road improvements, and other measures such as identification of accident-prone areas and making improvements. At the 6th EST Forum, Japan reported that it was seeking to disaster-proof safety facilities such as traffic signals. At the 7th EST, Japan reported that an Automobile Liability Security System was in place, ensuring that liability insurance for all automobile owners was mandatory. Japan reported at the 8th EST Forum that on community roads, pedestrians are prioritized, and traffic-calming measures were put in place. It also reported that the Japanese government implements indemnity services for victims of uninsured or unidentified automobiles. At the 10th EST Forum, Japan's report indicated that amongst G7 countries, Japan has the highest number of pedestrian and bicycle rider fatalities, with half of the accidents occurring within 500m from their homes, indicating that there is still more work to do. According to the Global Status Report on Road Safety 2015, Japan enjoys low rates of traffic fatalities, but still lacks international best practices in speed management, drink-driving and child-restraints, while implementing best practices in helmet and seat-belt use. According to the report, Japan has excellent traffic death registration data.
Republic of Korea	Republic of Korea reported briefly on safety in its report to the 6th EST forum, emphasizing the safety of public transport, and construction of safe bicycle facilities and EV charging facilities. In its report to the 7th EST Forum, the country reported that it aimed to reduce traffic casualties by 10% annually and expand a supply of digital driving recorders for commercial vehicles as well as enhanced safety inspections. The country also began providing assistance to victims including relief measure for hit-and-run victims. The country aimed to provide specialized rehabilitation services for victims as well as counseling services for the families of victims, as well as a comprehensive assessment of regional transport safety and an advanced project to identify traffic "black spots". According to the Global Status Report on Road Safety 2015, Republic of Korea has a traffic fatality rate of 12 per 100,000 population, higher than other developed economies, but lower than middle-income countries, indicating a need to improve policy in this area. According to the report, the Republic of Korea has excellent traffic death registration data.
Lao PDR	Road traffic safety was reported as one of the five theme areas of the Land Transport Master Plan in Lao PDR during the 7th EST Forum, as well as a part of the country's EST strategy. According to the Global Status Report on Road Safety 2015, Lao PDR's traffic fatality rate is moderate compared to other countries of similar economic development level. Implementation of helmet laws is good, but speed limits, drink-driving law, seat-belt law, child restraint law have received low ratings for enforcement. According to the report, Lao PDR does not report traffic death registration data.
Malaysia	According to the Global Status Report on Road Safety 2015, the country suffers a high traffic fatality rate of 24 per 100,000 population. The country has national speed laws, drink-driving laws, motorcycle helmet laws and seat-belt laws (for front seat occupants only), but lacks a child restraint law. All these laws have been enforced to a "moderate" level. According to the report, Malaysia does not have eligible traffic death registration data available. Malaysia reported at the 7th EST Forum that it had implemented several laws and had participated in the international Road Assessment Program (iRAP) pilot study. It also was preparing its Road Safety Plan (2011-2020) and was implementing an automated enforcement system to reduce speed and red light violations. The 8th EST Forum report aimed to reduce the number of road fatalities compared to BAU by 50% by 2020, and aimed to introduce mandatory rear seat belt wearing, and also introduced the Road Safety Plan of Malaysia (2014-2020).
Maldives	At the 6th EST forum, Maldives reported that its National Strategy for Sustainable Development (2009) aimed to halve road transport deaths by 2015, although further information on this target has not been reported. Road safety in the Maldives is not included in major international reports on road safety.

Mongolia	In the 8th EST, Mongolia reported that a MCC (Millennium Challenge Corporation) project for SIN (Safety Information Network) is under way. In 2012 Mongolian Government Resolution No. 146 to the 2012-2020 adopted a national strategy to ensure traffic safety. A major initiative is to reduce deaths from road traffic accidents and the number of injured people by 50%. (8th EST). According to the Global Status Report on Road Safety 2015, Mongolia suffers a high rate of traffic death at 21 per 100,000 population. While the country has enacted traffic safety laws, enforcement is rated as poor. According to the report, Mongolia does not have eligible traffic death registration data available. During the 10th EST Forum, however, Mongolia reported that Parliament had approved a new Law on Traffic Safety which was amended in2017, and had developed and enforced progressive safety standards such as helmets for motorcycles, requirements on child seats in cars, and procedures for auditing traffic safety, etc.
Myanmar	According to the Global Status Report on Road Safety 2015, Myanmar suffers a high traffic death rate of 20.3 per 100,000. The country lacks seat-belt laws, child restrain laws, and laws on mobile phone use while driving and drug-driving laws. The country's motorcycle and speed laws are moderately enforced. According to the report, Myanmar does not have eligible traffic death registration data available. In order to address this problem, Myanmar created the National Road Safety Action Plan and developed a National Road Safety Committee (7th EST Forum report). Numerous campaigns were established to raise awareness, testing for drivers and vehicles was improved, and during the 9th EST Forum, Myanmar committed to "halve the fatality rate by 2020". Myanmar has also started imposing fines on passengers not wearing seat belts in 2016. According to the 10th EST Forum report, Myanmar had established a National Road Safety Council, a Road Safety Council in regions and states, and was implementing seat belt laws for drivers and passengers, mandatory helmet laws, drink driving laws, mobile phone safety laws. The country was upgrading driver tests, creating a road accident hotline, adding road safety to school curriculum, etc. Many programs are coming into place.
Nepal	Although Nepal had not reported on safety in earlier years, by the 8th EST Forum, it reported that it had adopted a Nepal Road Safety Strategy 2013-2020, introducing speed controls, improving driver licenses and producing separate licenses for public drivers, identified the Ministry of Physical Infrastructure and Transport as the lead agency, committed to a Road Safety Council by 2015, and increased enforcement against drunk driving. At the 9th EST Forum, Nepal had reported on its Nepal Road Safety Strategy and *Action Plan*, noting that road safety audits would be required on all strategic roads, that the Road safety council had been established, that a Road Safety Act was under development, and that amendments to other acts related to safety were underway, and that 75 km of crash barriers were being built in "black spot" areas in hilly roads. Bringing the system forward in the report to the 10th EST Forum, Nepal noted that it had improved speed control, launched new driver licensing technology, implemented compulsory vehicle registration and third party insurance, and that passenger insurance and compensation for accidents would be included within the price of transportation tickets. Nepal has shown consistent effort and improvement in the area of road safety policy.
the Philippines	In the WHO's Global Status Report on Road Safety 2015, the Philippines was noted as having good data on traffic death registration, along with many developed countries. While traffic fatalities both increased and decreased between 2004 and 2013, they appeared to be on an upward trajectory, meaning that attention to this sector was necessary. In order to address road safety, the Philippines has developed road safety training modules for local use, implemented trainers' training in Manila, and undertaken regional road safety training programs. The country also established the Center for Research on EST which has a safety component. In the private sector, the Philippines-Global Road Safety Partnership Program was listed as important (5th EST Forum). During the 7th EST Forum, the Philippines noted that an Integrated Road Accident Database System was under development. The 9th EST Forum reported on the increased insurance requirements for accidents and the acquisition of breathalyzers to enforce drunk driving laws. Finally, at the 10th EST Forum, the Philippines is reporting that it is crafting an Implementation Rules and Regulations for speed limiters and issue guidelines for road safety, as well as a Data for Road Incident Visualization Evaluation and Reporting System (DRIVERS) to collect and report data on crashes to identify crash black spots, determine economic costs of accidents, and monitor effects of interventions.

Pakistan	Pakistan reported at the 6th EST Forum that it would remove carriers on rooftops of buses and wagons as a safety measure, ensure adequate pedestrian crossing facilities, and implement preventative and curative measures to minimize road accidents. The report to the 7th EST forum featured improved drivers licensing and improvement of post-accident care systems, as well as the establishment of vehicle inspection and certification system in Punjab. Pakistan's report to the 10th EST Forum says that road safety is included in the draft National Transport Policy in Pakistan, including a national steering committee. National Road Safety Council at the Minister's level exists and will start functioning. Five topics are featured, based on the pillars of the Global Plan of the Un Decade of Action: · Road Safety Management · Make roads and roadsides safer · Safer vehicles · Safer users (Drivers, Motorcycles, Pedestrians, etc.) · Post-crash care Pakistan plans to launch a comprehensive road safety plan in collaboration with the ADB. The T.A. has been approved and a consultant has begun work. According to the Global Status Report on Road Safety 2015, Pakistan is one of the ten most populous countries, but it has not implemented any best practice legislation for road safety – most traffic safety laws are rated as poorly enforced. The country has no eligible death registration data available, but traffic death rates are estimated to be moderate at 14.2 per 100,000 population. Pakistan lacks a child restraint law.
Russian Federation	According to the Global Status Report on Road Safety 2015, Russia has implemented international best practice legislation in the areas of helmets, seat-belts and child restraint, and has good traffic fatality registration data available. Traffic laws enjoy a good rating for enforcement. Yet, the country suffers a moderately high traffic fatality rate of 18.9 per 100,000.
Singapore	According to the Global Status Report on Road Safety 2015, Singapore enjoys a very low traffic fatality rate of 3.6 per 100,000 population. The country has implemented best-practice legislation which is enforced to a high degree. According to the report, Singapore has good traffic fatality registration data available. Singapore has a Pedestrian and Cyclist Safety Committee, and has identified "Silver Zones" for making selected areas safer for senior citizens. According to Singapore's report to the 10th EST Forum, 9 silver zones have been created since 2014, and 12 more are planned by 2018.
Sri Lanka	Sri Lanka noted in its report to the 5th EST Forum that 1 in 50 deaths was believed to be in road accidents, a high rate, and the economic costs of accidents were also high at Rs 30 billion per year (USD 260m in 2010). The report to the 7th EST Forum noted that Sri Lanka was focusing on mandatory seat belt laws and awareness, as well as the establishment of a National Road Safety Policy and National Road Safety Council. In its presentation of the Urban Transport Master Plan for Colombo Metropolitan Region and Suburbs at the 8th EST Forum, Sri Lanka stated that a low carbon development option focused on public transport would result in lower economic losses due to accidents compared to a BAU scenario. The increased role of road safety councils and their integration with police stations was detailed at the 9th EST Forum, as well as improved law enforcement, speed limits and improved education and awareness of drivers, and heavy fines for drunk drivers have been imposed. Progress continued to the 10th EST Forum, with updates reported to the national road safety action plan (2016-2020), and the introduction of a demerit system for drivers that break traffic laws. According to the Global Status Report on Road Safety 2015, Sri Lanka has a high traffic fatality rate of 17.4 per 100,000. The country implements best practice legislation except for national child restraint laws, but enforcement in speed and drink-driving laws is rated as moderate, while others are good. According to the report, Sri Lanka does not have eligible traffic fatality data available.

Thailand	Thailand's roads are ranked as the second most lethal in the world after Libya's by the World Health Organization, with 24,000 people killed on roads annually. High speeds and drink driving are noted as the top reasons for road fatalities, and 73% of those killed are motorcycle drivers. (http://www.bbc.com/news/world-asia-38668335) While Thailand has established programs under the title of "Decade of Action for Road Safety", recent reports suggest that they have not been successful, though according to the World Health Organization's Global Status Report on Road Safety 2015, deaths seemed to be plateauing in 2012. (http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/). Lack of awareness about traffic laws, outdated traffic laws, and slack enforcement are noted as possible reasons for the high levels of traffic deaths and injuries. (http://www.chiangraitimes.com/road-safety-in-thailand-should-be-a-permanent-national-agenda.html), and the Prime Minister has taken note to strengthen safety laws, including measures such as vehicle GPS tracking systems, stricter speed limits, and eliminating certain categories of vehicles from the road. (http://m.startribune.com/thai-pm-plans-driving-crackdown-after-deadly-van-crash/409629725/?section=world)
Timor-Leste	According to the Global Status Report on Road Safety 2015, Timor-Leste suffers a moderately high traffic fatality rate of 16.6 per 100,000, although the report notes that eligible fatality data is not available for the country. Timor-Leste has enacted best practice legislation and a road safety strategy is funded in the national budget, but enforcement of laws is poor. During the 7th EST forum, Timor-Leste reported that it subscribed to the 3 zero's concept. The report to the 9th EST forum indicated that many traffic accidents are unreported, and therefore statistics may not be reflective of reality. Finally, during the 10th EST Forum, the country reported that it is in the process of modernizing its traffic control and monitoring systems to improve safety.
Viet Nam	Traffic fatalities have been described by some officials as "like a war" by government officials in Viet Nam, requiring swift and strict action. The National Traffic Safety Committee noted that in the first half of 2013, 4,163 people had been killed and 12, 171 injured, with many injuries caused by high speed. Viet Nam rolled out its "black box" requirement to record information about drivers including the speed and direction of their cars or trucks in order to remind drivers about their responsibilities, but it has only been in 2016 when this policy became more strictly enforced. At a conference in 2017 chaired by the Deputy Prime Minister and Chairman of the National Committee for Traffic Safety, it was reported that in 2016, 8,685 people died in traffic (20% lower than 5 years previously), with over 19,000 injured, with 67% involving motorcycles and 50% involving people 27-50 years old. Given the high-level support to this cause, it is hoped that through stricter enforcement of laws, reduction of alcohol consumption, and better education of young people, that traffic safety can be improved. Viet Nam is targeting traffic fatalities to be fewer than 7,300 per year. (http://e.vnexpress.net/news/news/in-vietnam-traffic-accidents-kill-more-people-than-pandemic-diseases-3503638.html)
Goal-14: Promote monitoring of transport health impacts	
Afghanistan	Afghanistan has conducted an emission inventory for 2005 and was undertaking an update during the 7th EST forum reporting period – including an update of the burden of disease report. In 2010, it was noted that 31% of air pollution was attributable to transportation. The country reported at the 8th EST forum, that it faced several challenges in updating data, including that it lacked capable human resources, time series data on level of air pollution, time series data on health of the population, and insufficient financial resources. Optimistically, health impacts from transportation emissions were one of the priority focuses of the proposed Air Quality Strategy. The 2015 report did not include any update, but the report to the 10th EST Forum suggest that an air quality management program has been introduced.
Bangladesh	Bangladesh's Clean Air and Sustainable Environment (CASE) project has implemented continuous air quality monitoring by 11 stations in Dhaka, Chittagong, Rajshahi, Khulna, Barisal, Sylhet, Gazipur, and Narayangang. Roadside monitoring stations have been under operation, and systems are in place to monitor automotive noise and tailpipe emissions. Finally, a 5-year project under CASE was established to strengthen institutional and regulatory frameworks for air quality management to help improve the environment in major cities. Yet, road users remain unaware of the risk to health of transport-originated air pollution, and non–compliance by transportation owners and workers is common.
Bhutan	There is little information available on the public health impacts of transportation in Bhutan, with funding support and expertise needed to generate progress in this goal.

Brunei Darussalam	There is little information available on monitoring of the health impacts from transport emissions and noise currently implemented. The National Land Transport Plan includes a headline policy noting that local air and noise quality must be improved through new technology and behavioural change. This could also be achieved through mode shift, low sulphur fuel and noise regulations along with electric or fuel cell buses.
Cambodia	Cambodia noted in its report to the 5th EST forum that little was known about the issue of health and the environmental impact of transport emission, and emphasized the need for stakeholders to analyse this problem at the 6th EST Forum. This was also mentioned at the 8th EST forum.
P.R. China	Although some NGOs have determined the health impacts of transportation-related pollution in Chinese cities, there has been little work to publicly promote monitoring of health impacts from transportation emissions and noise. While many pollution reduction projects are justified with public health as the main reason for implementation, details of health impacts of transport pollution are not readily identified.
Indonesia	Indonesia has reported during the 5th EST Forum, that the 1992 Blue Sky Program aims to control air pollution including mobile source pollution through city evaluation awards. Evaluation criteria include ambient air quality, vehicle exhaust emissions and transport management systems. Outcomes from this program have not been reported through the EST Forum process. According to Indonesia's report to the 10th EST Forum, the MoEF introduced activities to monitor impacts of vehicle emissions related to health.
India	Throughout the EST Forum process, India has not reported specifically on monitoring of health impacts of transportation, although during the 9th EST forum, it was recommended that studies be undertaken on environmental impact, health impact and toxicology related to the apportionment of emission sources.
Japan	No information was discovered reported to the EST Forum process regarding this goal from Japan.
Republic of Korea	Although Republic of Korea has reported on vehicle testing, it has not focused on air pollutants in its EST Forum process reporting, nor has it reported on monitoring of health impacts. Republic of Korea aimed in its report to the 7th EST Forum to revise laws and regulations related to the Green Growth Basic Act and Clean Air Conservation Act, but revisions were aimed at GHG emission reduction.
Lao PDR	Lao PDR has not reported on this goal during the period since the Bangkok 2020 Declaration.
Malaysia	Malaysia set up a Secretariat to develop, implement and coordinate a National Environmental Health Action Plan to focus on air pollution and its health impacts. Reported in its 8th EST Forum report, it noted that there was an inadequate understanding of human exposure to traffic emissions. In its report to the 10th EST Forum, Malaysia noted that research was being undertaken on air pollution-related diseases, and systematic studies were being conducted on major health impacts.
Maldives	The Maldives National Strategy for Sustainable Development (2009) has the objective to reduce pollutant emissions from transport to levels that minimize effects on human health and/or the environment, but data has not been reported on policy or technology options, or timelines or specific target levels of pollution.
Mongolia	In the 7th EST Country report, Mongolia reported that there were no specific projects on monitoring the health impacts from transport issues. However, it did report that it would take the following actions in 2013: 1. Develop State policy on auto transport 2. Renew regulation on auto transport inventory Improve law regulation on environment and health sector impacts from auto transport, aligning with environmental requirements. Actions have been taken to quantify pollution sources in Ulaanbaatar City, as well as to implement a clean air program. (10th EST Forum Report)
Myanmar	Myanmar reported at the 7th EST Forum that it had reformed and assigned the National Environmental Conservation Committee in April 2011 to address health and transport. The Ministry of Health has issued its National Health Policy, and vehicle emission limits that can impact on health issues and environmental issues were to be developed. A program was underway to deregister and replace vehicles that emit above limits.

Nepal	During the 5th EST Forum, Nepal reported on its ambient air quality issue, and that air quality brought challenges for public health. A study was underway during the period of the 8th EST Forum of the impact of air pollution on health in Kathmandu, Bhaktapur and Lalitpur. This research may have spurred a number of initiatives reported in the 10th EST Forum report that while not directly addressing health, will be required to reduce emissions over time.
the Philippines	Beginning at the 9th EST Forum, the Philippines reported on the design of an Advanced Traffic and Pollution Monitoring System that could be used to monitor health impacts of transportation. In the report to the 10th EST Forum, the Philippines reported on the development of an Emission Factor Development, aiming to accurately capture the emission profile of the vehicle fleet and provide data, information and tools for improved management of air pollution from mobile sources. Recognizing the health impact of transportation, the Philippines has rolled out several vehicle management schemes such as replacement of 2-stroke tricycles, Jeepney replacement to LPG and others.
Pakistan	Pakistan reported that it would set up air quality monitoring stations at appropriate locations at 7th EST Forum, and would implement Euro II standards for fuel and vehicles as well as phase out two stroke engines and introduce 4-stroke CNG. In its report to the 10th EST Forum, Pakistan wrote that a mitigation plan, strategies and programme are being developed. The Metro Bus project should have significantly reduced emissions, attributed to the avoidance of using personal vehicles by 9% of current commuters on the Metro bus, and another 668 small public transport vehicles.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore conducted studies to assess the economic impacts of air pollution, which serve as bases for the derivation of mitigation strategies covering fuel quality, new and in-use vehicles. (8th EST Forum report)
Sri Lanka	Sri Lanka estimated that pollution was responsible for 5,000 premature deaths per year in the country at the 5th EST Forum, but thereafter requested assistance in evaluating this risk, and has monitored air quality in certain locations for awareness-raising.
Thailand	While Thailand has reported that transportation is a source of 75% of CO, 80% of NOx and 54% of PM in Bangkok at the 7th EST Forum, it has not made specific reports linking health to transportation in subsequent years. Thailand has demonstrated the economic and health benefits of sulfur reduction in diesel, with the shift from Euro 3 to Euro 4 fuel resulting in savings of up to USD $1.8 billion with less CO, NOx and PM emissions, lower health-care costs and fewer incidences of lung disease and respiratory illness. (http://cleanairasia.org/workshop-highlights/ as viewed on 5 February 2017).
Timor-Leste	No information has yet been reported on monitoring of the health impacts from transport emissions and noise in Timor-Leste.
Viet Nam	Viet Nam is currently building its resources for monitoring health impacts from transport emissions. In 2010, a National Environment Report (cited in the 2013 “Towards Development of Strategic Directions for the Promotion of EST in Viet Nam by 2020” report), comprehensive data was presented on the concentrations of pollutants and noise along major roads across a sample of cities. The Ministry of Health tracks statistics, and air pollution in Ha Noi was cited as the reason for having high prevalence of respiratory disease than Ho Chi Minh City.
Goal-15: Establish country-specific air quality and noise standards	
Afghanistan	Afghanistan introduced a National Ambient Air Quality Standard in 2011, and the Ambient Noise Quality Standard (as part of the Noise Pollution Control Regulation) was in process in 2012. By the 9th EST forum, Afghanistan had accomplished the establishment of the National Ambient Air Quality standard, the National Ambient Noise Quality Standard, and one continuous monitoring station had been established, with plans of expanding the monitoring system in Kabul in 2015. But the country did face a lack of financial resources to expand the monitoring network, and need for technical support in operating the existing continuous monitoring system.

Bangladesh	The Clean Air and Sustainable Environment (CASE) project has been a key initiator of air quality and noise standards, and air quality standards are in development. Meanwhile, Bangladesh monitors PM, ozone, SO_2, NOx and CO at continuous air monitoring stations, and an air quality and noise standard is being enforced by the BRTA. A noise standard has also been established an enforced.
Bhutan	Bhutan has industrial air pollution standards in place, but not for noise. While helicopters were not allowed in 2011, the Civil Aviation Strategy in the Transportation 2040 Integrated Strategic Vision suggest opening up helicopter services for search and rescue, emergencies and charter services in the future. Bhutan has installed air quality monitoring stations in four municipal areas, and plans to expand this coverage to all 20 districts by 2018.
Brunei Darussalam	During the 7th EST Forum, Brunei noted that it had been regulating emissions and noise through computerized vehicle inspections. The National Land Transport Plan notes the importance of implementing noise and fuel sulfur standards so as to protect air quality, but air quality standards are not noted.
Cambodia	Cambodia communicated the need to monitor ambient air quality and roadside air quality and to formulate emission standards at the 5th EST Forum. It also discussed a lack of parameters in the Sub-decree on Air Pollution and Noise Disturbance Control, noting the need to address these issues through People and Environment Friendly Transport Infrastructure Development. These needs, however, were not followed up on in subsequent EST forum reports.
P.R. China	With air pollution becoming a key topic of headlines on the front pages of P.R. China and around the world, the government of China has taken strong action to identify pollution sources, create plans for pollution reduction, and develop standards and procedures for acute pollution events. In 2013, the Action Plan on Prevention and Control of Air Pollution was released by the State Council of the P.R.C. as guidance for national efforts to prevent and control air pollution for the present and near future. Air quality targets were identified for the Jing-Jin-Ji region, Yangtze River Delta Region and Pearl River Delta region, where the levels of fine particulate matter will be cut by 25%, 20% and 15% respectively, with annual concentration of PM2.5 kept at or below 60 micrograms per cubic meter. This will be achieved through reduction in coal consumption, reduction in iron and steel-making capacity, controlling the numbers of vehicles on roads, and increasing non-fossil fuel energy. The plan also mentions developing pollution controls for off-road equipment including construction machines and ships, and even researching the development of congestion charging and low emission zones for cities – a suggestion repeated by members of the CPPCC. Yet, the China Academy of Sciences notes that although the public perception is strong that cars are the main source of smog, there may be other more important sources.
Indonesia	The Indonesia Ministry of Environment and Forestry issued a ministerial regulation on noise (rule 14/2003) according to Indonesia's report to the 9th EST Forum. In Indonesia's report to the 5th EST Forum, the Blue Sky Program description includes voluntary standards for ambient air quality. The country is revising its ministerial decree on noise as well as regulations on air quality control.
India	India reported at the 6th EST Forum that the country already had national air quality standards for 12 pollutants, and by the time of the 9th EST reported that it would strengthen its air quality monitoring stations. It also reported that continuous monitoring was being undertaken in 16 cities with 50 stations, and that 650 operating stations covering 175 cities/towns were operational, with 700 stations sanctioned.
Japan	During the 5th EST Forum, Japan reported that it already had 1987 continuous air quality monitoring stations working in accordance with the Air Pollution Control Law. During the 6th EST Forum, details emerged that that Japans targets for reduction of NO_x and PM in ambient air were set in 2000, with targets for 2010. These targets were achieved, and new targets were set for 2015 and 2020. Japan reported at the 7th EST Forum that air quality monitoring data was made available in real-time online, and that the Noise Regulation Law required systematic and constant monitoring of motor vehicle traffic noise by local governments. This data and simulated sound propagation pathways are made public annually.
Republic of Korea	Republic of Korea reported that it had implemented the "Total Air Pollutant Load Management" in industrial sites since 2008, with about 300 companies participating by 2012. The country had also implemented an emission trading system, and exhaust gas controls. (7th EST Forum report).

Lao PDR	Ambient air quality monitoring and management were mentioned during the 5th and 6th EST Forum reports by Lao PDR, but specific details were not outlined. Traffic noise management was mentioned as part of the EST strategy in Lao PDR during the 7th EST Forum.
Malaysia	Malaysia's Clean Air Action Plan is part of the tenth Malaysia Plan (2011-2015), aiming to reduce emissions from vehicles, reduce haze, and build institutional capacity and public awareness. (5th EST Forum Report). The country had a network started in 1995, collecting air quality and noise data to be used as supporting data for the formation of air quality standards and guidelines. Ambient noise monitoring started in 2012. (7th EST Forum Report). In its report to the 10th EST Forum, Malaysia described its New Ambient Air Quality Standard with interim targets in 2018 and full implementation by 2020.
Maldives	Specific air quality and noise targets for Maldives have not been reported at EST Forums. The International Association for Medical Assistance to Travelers notes that Maldives only has one air pollution monitor reporting to the World Health Organization, and that particulate matter levels are generally "low". (https://www.iamat.org/country/maldives/risk/air-pollution)
Mongolia	The National Committee on Air Pollution Reduction was established in 2012 under the Office of the President of Mongolia with the first meeting occurring on December 1, 2016 (7th EST, 24). The 7th EST reported that under the "New Reconstruction Midterm Development Program'' 2010-2016 was a goal to decrease air pollution in Ulaanbaatar city 50% by 2016. In addition, below are a selection of Mongolia's air and noise quality standard laws (8th EST country report) · MNS 4585:2007 Ambient Air Quality Standard. · MNS 6342:2012 Air quality. Hazardous waste incineration emission, its permitted limit; · Noise standard: MNS 17.5.1.21:1992 Transport noise standard and its methodology of measurement.
Myanmar	Myanmar's report to the 8th EST Forum indicates that the Environmental Conservation Department, established in 2012, was developing environmental quality guidelines based on International Finance Corporation guidelines. The ADB was providing technical assistance for this process.
Nepal	Air quality has been an issue in the Kathmandu Valley for many years, and during the 5th EST Forum, Nepal reported that ambient air quality standards would require upgrading, and that air quality monitoring should be outsourced. An advance was reported at the 9th EST with the Kathmandu Sustainable Urban Transport Project components, which included air quality to help inform project objectives. While it was not discussed in recent EST Forums whether or not Nepal had upgraded its air quality standards, in the 10th EST Forum report, Nepal noted that it had established three monitoring stations.
the Philippines	The Philippines reported during the 7th EST Forum that Air Quality Standards, DAO 2013-13 establishing guidelines for PM2.5, Noise standards, and ambient air monitoring and reporting standards were under development. Later EST Forum reports did not report on whether or not these were completed. However, a web search indicates that these standards have been rolled out with a timeline for increasing stringency. (http://denr.gov.ph/news-and-features/latest-news/1267-denr-sets-standards-for-fine-particle-pollutants.html). The standards are not for compliance purposes, but for evaluating the quality of outdoor air.
Pakistan	Pakistan reported that ambient air quality monitoring squad and stations have been established by city government during the 7th EST Forum, and at the 8th EST Forum reported that air pollution had been monitored at 26 different traffic junctions in Peshawar city, revealing that CO emissions exceeded WHO standards, and dust levels exceeded WHO standards by 10 times. Pakistan also reported that the Environmental Protection Agency has established a state-of-the-art Central Laboratory for Environmental Analysis (CLEAN) for analyzing environmental pollutants as well as toxicity. During the 10th EST Forum, Pakistan reports that national air and water quality standards have already been promulgated, and smoke, CO and noise standards for vehicles are in place.

Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore has a comprehensive ambient air quality standards and monitoring regime in place including long-term targets for 2020 (8th EST Forum report).
Sri Lanka	Sri Lanka reported on ambient PM10 levels compared to a national standard during the 6th EST Forum. Sri Lanka reported that it is monitoring air quality standards in some locations, but lacks equipment and technical experience (9th and 10th EST Forum Reports)
Thailand	General air quality standards were established in Thailand in 1995, and updated in 2007, with ambient PM2.5 limits updated in 2010. (http://www.pcd.go.th/info_serv/reg_std_airsnd01.html) Noise standards were implemented in 1997, and noise standards for vehicles were implemented in 2003. (http://www.pcd.go.th/info_serv/en_reg_std_airsnd04.html)
Timor-Leste	No specific updates were made on air quality standards through the EST Forum process, but in its report to the 10th EST Forum, Timor-Leste indicated that it would acquire technology for assessment and monitoring of air quality and noise.
Viet Nam	Viet Nam has made progress on developing air quality standards for its cities. While no report was made on such a plan during the 7th EST forum, by the 9th EST forum, Viet Nam reported that it had developed: - National Technical Regulation on Ambient Air Quality was adopted on 25 October 2013 - National Technical Regulation on Environment in Ha Noi city dated 5 September 2014 - Report on national air quality
Goal-16: Implement sustainable low-carbon transport initiatives to mitigate global climate change	
Afghanistan	Afghanistan became a party to the Kyoto Accord in 2013, and submitted its INC before the 7th EST forum. Technical assistance had been sought to introduce projects under the CDM including the transport sector. In the 8th EST Forum, it was reported that a DNA framework had been developed, and plans were in place to register at least two projects with the CDM Executive Board (although it is not clear if these were transport-related), and a project proposal to be financed under the Climate Fund would be developed. At the 10th EST Forum, the country reported that it has implemented a climate change institutional framework under the government structure.
Bangladesh	Bangladesh has been assertive in developing climate change plans. The Bangladesh Climate Change Strategy and Action Plan 2009 is in place, as is the Bangladesh National Adaptation Program of Action. Diesel buses and minibuses are being converted to CNG (which could be made from municipal waste, if plans are able to go ahead), and electric auto rickshaws are being introduced in secondary cities. However, it is the introduction of MRT and BRT systems that should shine most brightly in Bangladesh's plans to reduce GHG emissions from the transport sector. Efficient public transportation by rail is significantly more efficient that many other forms of urban transport, and high-occupancy vehicles also make important contributions to emission reductions, especially if they are used at full capacity.
Bhutan	Bhutan has submitted its second National Communication and GHG inventory, where it was reported that the transport sector accounts for the highest energy-related GHG emission (44%) in Bhutan. A NAPA report has been submitted, a Low Carbon Emission Strategy Assessment and a Technology Needs Assessment was completed identifying transport as the second highest priority sector. An Action Plan for Clean Air and Sustainable Mobility is under proposal for Thimphu, but it is unclear as to whether it has been created or not. While it is hoped that electrification of transportation could result in up to 30% reduction in GHG emissions from the transport sector, support is still required in terms of technology, capacity and funding. Operators of electric vehicles in the country have noted that there are not enough charging stations to provide reliable transportation, and that the government may need to take initiative above the private sector for rolling out a more comprehensive network to achieve its goals.

Brunei Darussalam	Brunei Darussalam had not reported on any initiatives to combat global climate change through low carbon transport initiatives by the 7th EST forum, but had submitted its INDC to the UNFCCC in advance of the Paris Climate Agreement, noting that the transport sector was one of the country's largest contributors of GHGs at 1.17 Mt CO_{2e} of the country's total 3.31 Mt CO_{2e} inventory in 2010. The country plans to reduce its carbon dioxide emissions during morning peak hour vehicle use by 40% by 2035 compared to BAU, while also implementing fuel economy policies and promoting electric or hybrid vehicles and implementing the other measures noted in its National Land Transport Plan.
Cambodia	Cambodia has not made substantive remarks on this goal in its reports to the EST Forums.
P.R. China	China is taking increasing actions in sustainable low-carbon development to mitigate the causes of global climate change and to fortify national energy security. Primarily, this is being accomplished through a strong fuel consumption standards for passenger and heavy-duty vehicles, but is also being accomplished through promotion of fuel switching, freight efficiency, mode shift in cities, transport demand management, and promotion of NMT by both public and private sectors. China has submitted plans to the UNFCCC to see an overall reduction of CO2 emissions per unit of GDP by 40-45% below 2005 levels by 2020, increase the share of non-fossil fuels in primary energy consumption to around 15% by 2020, and increase forest coverage and forest stock.
Indonesia	Indonesia has, since the 5th EST Forum, made low carbon transportation a priority and has progressively developed policy such as the National EST Strategy and National Implementation Action Plan for GHG Gas Emission Reduction in Land Transportation which have been developed as a unilateral NAMA. Not only have detailed national action plans been developed, but Indonesia also has reported detailed data on energy consumption and emission sources for the country, allowing for more pointed reduction strategies.
India	India has taken a comprehensive approach to low carbon transport. During the 6th EST Forum, India reported that transportation is included in its National Action Plan on Climate Change, and that a national policy was in place for public transport sensitive to climate change. In 2016, India was developing an inter-urban rail NAMA with the Asian Development Bank as a partner (http://www.transport-namadatabase.org/inter_urban_rail_nama_india/), was undertaking policy study in support of a fuel efficiency standard for India, and Low-Carbon Comprehensive Mobility Plans were being developed in Rajkot, Udaipur and Vishakhapatnam, along with a guidebook (http://transport-namas.org/projects/t-nama-countries-iki/india/).
Japan	Even at the point of the 5th EST Forum, Japan reported that its CO_2 emissions from the transport sector peaked in 2001, and by 2008 had approximately returned to the level of Japan in 1990, the base year determined in the Kyoto Protocol. In the 6th EST Forum, Japan aimed to achieve a low-carbon society, and to utilize Sustainable City Planning to build a low-carbon transport system. During the 7th 8th and 9th EST Forums, Japan reported that it had prepared its 5th National Communication and a 2010 GHG Inventory, followed by its 6th National Communication and 2012, 2013 GHG inventories.
Republic of Korea	One of the major focuses of Republic of Korea's green transport development program is to reduce GHG emissions. The country cited its continuous updating of comprehensive action plans for green transportation and improvement of in-depth policy alternatives since 2009; division of responsibility between central and local governments for fundraising and strengthening partnerships with the private sector; and expansion of "bus quasi-public operating systems" in local governments, encouragement of bike riding, and establishment of green transport cities. The country has undertaken successive GHG inventories. The Republic of Korea continues to support TOD development, comprehensive green transport systems (public transportation-pedestrian-bike), green freight, etc. (7th EST Forum report).
Lao PDR	Lao PDR is currently in the development of an initial/preliminary concept for a NAMA on Master Plan on Comprehensive Urban Transport of Vientiane with JICA as a partner. The project is comprised of a road network development plan, public transport development plan, and a transport management plan. The project could avoid 191 kt of CO2/year by 2025 with costs rated at USD 105 million until 2020. (http://www.transport-namadatabase.org/master-plan-on-comprehensive-urban-transport-of-vientiane-lao/). During the 9th EST forum, Lao PDR reported that a low

	carbon transportation study had been undertaken in partnership with JICA from 2012-2013, evaluating the expected climate outcomes of introducing EV to Lao PDR.
Malaysia	According to Malaysia's report to the 10th EST Forum, the Ministry of Energy, Green Technology and Water is finalizing the country's "National Green Technology Mater Plan" which includes the transport sector. Public transport, private transport and cleaner fuel are the primary means of reducing GHG emissions. The country will continue to promote public transport use, biodiesel (B10), CNG and electric vehicle roll-out. Malaysia is currently in the development of an initial/preliminary concept for a NAMA on energy efficient two-wheelers in Malaysia with GIZ as an international partner. Mitigation impact could be 6 Mt cumulatively between 2017 and 2027, but further details are not available. (http://www.transport-namadatabase.org/towards-energy-efficient-two-wheelers-nama-ee2w-in-malaysia/)
Maldives	In the Maldives National Strategy for Sustainable Development (2009), Goal 5 was to develop a Carbon Neutral Transport System. Specific objectives were to achieve a balanced shift towards environment friendly transport modes and to bring about a sustainable transport and mobility system, to establish an integrated public passenger transport service by 2010 (which was achieved by the time of the 6th EST Forum), to reduce emissions from the light duty car fleet to 140g/km by 2015, and to increase the level of biofuels in transport fuel to 10% by 2015 and potentially 20% by 2020. Public transport has seen the most action, as it is rolled out on and between islands that are being serviced by bridges (report to the 9th EST). As of October 2016, Maldives' Nationally-Determine Contribution aimed to have economy-wide emissions reduced by 10% below BAU by 2030 (unconditional) and up to 24% (conditional), but no specific targets or measures were mentioned for the transport sector ("Nationally-Determined Contributions Offer Opportunities for Ambitious Action on Transport and Climate Change". SLoCAT, October 2016.)
Mongolia	As reported in the 8th EST: · The National Action Programme on Climate Change (NAPCC) was approved by Parliament in 2011 and intends to meet UNFCCC obligations and commitments, establishing national policy and strategy to tackle the adverse impacts of climate change and to mitigate GHG emissions. - Phase 1 (2011-2016), strengthen national mitigation and adaptation capacities, set up legal, structural and management systems and improve community and public participation. - Phase 2 (2017-2021), implement climate change adaptation measures and start concrete greenhouse gas mitigation actions. · Pilot research project "Strategies for Green Public Transport in Mongolia'' as port of GGGI to study opportunities promote clean energy technologies for the public transport and enhanced inspection rules and regulation for vehicle emission control. Low carbon partnership agreement was signed between Mongolian and Japanese Government in January 2013. -Challenges to the plans cited include lack of international and regional cooperation in low carbon transport initiatives, lack of financing and that Mongolia is a small market for implementing carbon finance projects in the transport sector.
Myanmar	The Ministry of Energy initiated the Clean Fuel Program and made efforts to reduce CO_2 emission by increasing natural gas utilization in industrial sector and power generation, as well as by converting gasoline, diesel & LPG vehicles to CNG vehicles. (7th EST Forum report). According to the 8th EST Forum report, the Myanmar Climate Change Alliance was established in 2013, a National Adaptation Program of Action was launched in 2012, and the Myanmar Energy Policy would soon be released.

Nepal	Nepal first reported on aspirations to control GHGs at the 6th EST Forum, with no detail mentioned. The country reported that GHG emission from the transport sector were increasing during the 8th EST Forum, and envisaged undertaking activities to reduce emissions including mode shift, conversion of public vehicles to renewable energies and utilizing mass transit, reduce congestion and improve engine utility, promote NMT, educate the public on the advantages of clean energy transport, and create awareness amongst local and national stakeholders. These were to be enshrined in Local Adaptation Plans for Action (LAPAs) in Nepal. By the 10th EST Forum, Nepal's report noted that Nepali pollution standards had been defined and implemented, and that hydropower should be quickly developed to power electric vehicles and to otherwise develop eco-fuels to reduce GHGs from transport.
the Philippines	The Philippines have established a National EST Strategy that is consistent with the Bangkok 2020 Declaration and is rolling out many of the low-carbon initiatives indicated. Specifically, the report to the 9th EST Forum saw Green airport upgrades, and reported on a full concept under development for a Jeepney+ NAMA to transform Road-based Public Transport in the Philippines, and the Philippines's INDC submitted to the UNFCCC indicates that transport will be an area of GHG emission reduction. Philippines is now taking leadership in developing a monitoring framework and harmonized approach for indicators on energy and GHG emissions in the transport sector for the ASEAN Land Transport Working Group, and is the project proponent of the Sustainable Mobility for Passengers and Goods in metropolitan regions of ASEAN Member states. The Philippines are preparing to complete and institutionalize a GHG Inventory Team in the transport sector.
Pakistan	Pakistan has been a major promoter of CNG vehicles and has focused on this effort as one of its major projects on climate change and national security. Pakistan reported to the 7th EST Forum that I was also generating carbon credit/certified emission reduction projects. Pakistan's report to the 9th EST Forum focused on the PAKSTRAN project, an initiative of UNDP-GEF and the Government of Pakistan to provide technical assistance to reduce the growth of energy consumption and GHG emissions. Fuel economy standards were also said to be explored during this reporting period. Rail-based mass transit, new transport system and renovation of railways were all cited as major climate-oriented projects.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	According to Singapore's report to the 8th EST Forum, the country has implemented a Carbon Emissions-Based Vehicle Scheme, a fee-bate program to incentivize car owners to buy cars with lower CO_2 emission ratings. Singapore has also considered transport emissions in its GHG inventory, part of the National Communication to the UNFCCC in 1994 and 2000.

Sri Lanka	Sri Lanka is developing a NAMA called the Sustainable Transport within Colombo Metropolitan Area (8th EST Forum report). This plan, focused on GHG emission reduction relies on transport corridor development, public transport, multi-modal transport hubs, fuel switching, and other strategies. (http://www.transport-namadatabase.org/sustainable-transport-within-colombo-metropolitan-area-cma/). Sri Lanka's report to the 10th EST Forum summarizes its other efforts: · National Action Plan for Harita (Green) Lanka Program · Colombo Low Carbon urban transport study was completed · INDC action plan was prepared with the coordination of Environment Ministry · National climate change policy was formulated · Climate change secretariat was established under Ministry of environment · SL Sustainable Energy Authority is functioning manly to promote the use of sustainable and renewable energy sources · SL carbon Fund Ltd is in operation as a state-owned private company to facilitate clean development mechanism in Sri Lanka · NAMA were prepared under the direction of UNFCC
Thailand	Beginning at the 7th EST Forum, Thailand took the important step of beginning to report on the contribution of the transport sector to national GHG emissions, key sources in the transport sector, and projected GHG emissions based on different scenarios, allowing for greater planning to occur. EST was mentioned specifically in Thailand's INDC, and that transport would be a major focus of China's climate change mitigation efforts. A road-to-rail modal shift for both freight and passenger transport, including extensions of MRT, construction of double-track railway and improvement of bus transit was cited in the INDC, and a vehicle tax scheme based on CO2 emission was approved, to become effective in 2016. The tax scheme replaces engine displacement as the framework for excise tax on vehicles, and especially focuses on the compatibility of vehicles with high ethanol blend fuels, as well as hybridization. (http://www.car.go.th/new/Excisecar). Thailand has registered a NAMA called "People-centered urban Mobility in Thailand", but details are not available. (http://www.transport-namadatabase.org/people-centred-urban-mobility-in-thailand-thailand-mobility-nama/). Thailand also has a "Master Plan for Sustainable Transport System and Mitigation of Climate Change Impacts" (10th EST Forum)
Timor-Leste	Timor-Leste indicated during the 9th EST Forum that it had undertaken a GHG inventory as part of its INC report, indicating that transport and energy emissions make up a large proportion of the country's emissions, although the absolute amount is relatively small. The country reported that renewable energy programmes had been launched, supporting biogas, solar energy, biodiesel, hydropower and wind energy. During the 10th EST Forum, Timor-Leste indicated that a small investment had been made in electric taxis to reduce GHG emission reduction.
Viet Nam	Viet Nam's reporting on GHG emissions from the transport sector has advanced. While in the 2010-2013 period, no mentions of GHG emissions were made in the EST reports, by the 8th EST forum, work was being undertaken on an inventory of GHG emissions from the transport sector, and a Working Group was established in 2016 under the Ministry of Transport to assess road, rail, air maritime and inland navigation emissions. With transport being responsible for about 20% of the country's total energy-based emissions, it is also a focus area of Viet Nam's Intended Nationally Determined Contributions (INDC). The INDC targets 8% emission reduction compared to BAU by 2030, and increase transport modal share from <10% at present to 25-30% by 2020. (ccap.org/assets/Vietnam-Bus-NAMA_Vietnam_FinanceSummit2016_20-5-2016.pdf). This is being supported by a Low Carbon Bus NAMA that will involve improved bus technology, improved operational efficiency, and system improvement. The NAMA, supported by UNDP, GIZ and KfW, is expected to have an 18.4 Mt CO2 mitigation potential by 2030. (http://www.transport-namadatabase.org/low-carbon-bus-nama-vietnam/).
Goal-17: Adopt social equity as a transport planning and design criteria	

Afghanistan	Social equity is an important design criteria for transport planning. Improvement of the road network is an ongoing priority of the government, and during the 8th EST forum reported that improvement continues to maximize the facilities for poor and low income populations, and was reported to be largely in place, although facing insufficient financial resources.
Bangladesh	The National Integrated Multimodal Transport Policy is the driving policy addressing issues of improved quality, safety and security for all, especially for women, the disabled and senior citizens. While funding is a major constraint, efforts have been made to reserve priority seats in public transport, elevators have been installed at some food bridges for easier crossing, and special bus services for women and students have been introduced. These special bus services have been introduced several times over the years and have had difficulty persisting over time. It is hoped that the BRT and MRT services, when they are introduced will have even better services for different groups of people in Dhaka.
Bhutan	Social equity is an important goal for Bhutan, but challenges exist because people living in remote areas either have to pay high fares for transportation or are altogether deprived of quality transport as bus operators are hesitant to travel to places with low population density. At the same time, a massive road network expansion program is in the works to provide better access to remote areas, and some highways are being doubled. Finally, reserved seats have been made available for people with special needs in urban buses.
Brunei Darussalam	Brunei Darussalam's primary approach to equitable transportation is to impose only minimal fees for public transport use, and providing facilities for disabled people in commercial areas. The National Land Transport Plan notes that the fuel subsidy weakens the viability of public transport, thus reducing this approach to equitable access to mobility.
Cambodia	The thematic area of gender perspectives has been considered by Cambodia in its progress on EST strategies at the 5th and 6th EST Forums, but there has been no further mention in subsequent reports.
P.R. China	During the 7th EST forum, China reported that no action had been taken thus far on social equity as a planning design criteria in the development of transport initiatives. Yet many provisions are in place for disadvantaged groups. Most public transport has reserved seating for people with mobility challenges; new subway stations are typically equipped with elevators or stairway elevators for disabled riders, and sidewalks are often ramped at intersections to ensure that people who have challenges to step up can safely use sidewalks. Yet, enforcement and use of social equity in all planning and design is still sometimes lacking.
Indonesia	Nationally speaking, Indonesia's focus on equity reported during through the EST process has focused on facilities for disabled people in connection with non-motorized transport. However, little other information on equity in the transport sector has been reported. Locally, Surakarta City has aimed to provide special seats on public transit for disabled, pregnant women and the elderly, as well as assistance for boarding the bus. A national accessibility movement in 2015 was initiated to ensure access for elderly and disabled people, and Transjakarta provides transport for women and disabled people.
India	In its National Transport Development Policy, India's approach for 2030 includes social and environmental aspects of transportation, including safety, security, universal accessibility, and vehicle and fuel technology (6th EST Forum). During the 7th EST Forum, India reported that it was finalizing a toolkit for public transport accessibility, and by the 9th EST Forum, the country reported that it was becoming more aware of rural areas having poor access to reliable and efficient transport, indicating a need for change, and media reports in 2016 indicated that the central government including the Road Transport Ministry and Rural Development Ministry would cooperate to liberalise permitting to allow for motorcycle taxis, e-rickshaws and jugaads to serve as public transit vehicles in rural areas, and encourage entrepreneurship and improve connectivity through rural public transit, including through grants. Operators awarded grants could include self-help groups of women, Dalits and tribal grounds belonging to Below Poverty Line families (http://timesofindia.indiatimes.com/india/Ministries-come-together-to-boost-rural-transport/articleshow/52560759.cms). The Accessible India Campaign also promotes universal accessibility to transport, and in a new mandatory initiative, CCTV cameras, GPS tracking systems and emergency buttons are beginning to be installed on public buses to ensure safety of women and other vulnerable groups (http://www.voanews.com/a/india-rolls-out-buses-equipped-with-safety-features-for-women/3346766.html).

Japan	While barrier-free transport facility objectives were set in 2000 for barrier free rail, bus and road transport, at the 6th EST Forum, Japan reported that new objectives to 2020 were set at a higher level to deal with the change of social conditions surrounding elderly and people with disabilities. Furthermore, Japan reported that it was promoting a new concept of building towns utilizing compact public transportation, giving consideration to the elderly, children, women and disabled persons in guidelines for reconstruction in response to the Great East Japan Earthquake. In its 8th EST Forum report, Japan reported modal shift towards low-carbon public transportation as a measure of social equity. The 9th and 10th EST Forum reports focused on advanced topics such as: · Promotion of making public transport facilities, and buildings barrier-free. · Promotion of prioritized, integral barrier-free design in the region. · Promotion of "psychologically barrier free" society. · Preparation of personnel development programs, promotion of spreading public awareness of displaying baby carriage marks, etc. As well as a revision of the basic act on promoting the facilitation of movement (10th EST Forum Report).
Republic of Korea	Accessibility and social equity have been core to transport system design in Republic of Korea. At least as early as the 5th EST forum, Republic of Korea focused on NMT transport, and its report to the 7th EST Forum focused on accessibility, universal design of city transport, enactment of the Act on Promotion of the Transportation Convenience of the Mobility Disabled, and training for public transit employees on the rights of disabled persons to use public transit. The country also introduced low-floor buses and call taxies for the disabled in Seoul. The Republic of Korea aimed to expand its supply of low-floor buses to 20% in rural areas and expand accessibility projects to consider the disabled in the designation of school zones, etc.
Lao PDR	Gender and transportation have been mentioned as projects under EST during the 5th and 6th EST forum reports by Lao PDR, and "Social equity and gender perspectives" were included as the EST Strategy in Lao PDR reported at the 7th EST Forum.
Malaysia	The NKRA projects are focused on purchasing new Universal Access buses, new LRT trains and KTM commuter trains with universal access features, PIDS, priority seats for persons with disabilities, elderly and pregnant women. Standards are under development for buses, rail stations and terminal in partnership with relevant community groups (7th EST Forum report). The program has largely been rolled out.
Maldives	While the Strategic Action Plan of Maldives (2008-2013) focuses on equitable distribution of wealth, specific measures for social equity have been specifically addressed in EST reports. Maldives has reported on the importance of walking and cycling on many islands, as well as ensuring strong public transit networks for residents.
Mongolia	According to the 8th EST and (22) there are two key laws that apply to disabled and special-needs people and transportation. MNS 5682: 2006 – Technical requirements for pedestrian and disabled sidewalks MNS 6056: 2009 - Planning roads for pedestrians and people with disabilities (1) For vulnerable groups of the population, current and future planning/construction will incorporate roads, entrances, exits and stairways for the disabled. (8th EST) However, anecdotal evidence suggests that the majority of public transportation and walkways are not accessible yet. (http://theubpost.mn/2016/05/09/people-with-disabilities-how-much-support-does-mongolia-really-give-them/)
Myanmar	During the Myanmar's report to the 8th EST Forum, it reported that Rail Infrastructure including easy access for the disabled and elderly would be implemented. During the 9th EST Forum, Myanmar reported that the IWT under the Ministry of Transport was providing daily ferry services between Yangon and Dala for the welfare of people facing poverty.

Nepal	During the 5th EST Forum, Nepal reported that in fact its public transport system was not inclusive. While this goal was not mentioned in the intervening years, in its report to the 10th EST Forum, Nepal reported that three initiatives have been implemented according to the 13th and 14th plans: 1. Provision of seat reservation and rental facilities to senior citizens and persons with disabilities 2. Provision of seat reservations and arrangements to women. 3. Initiation of low price fare for disabilities and elderly, through enabling concession in the fare and promote affordability of transport systems for low-income groups through initiation of concessions in fare. Media reports indicate that 30 barrier-free buses with ramps at the rear door had been procured and finally on the road by September 2016. (https://glocalkhabar.com/featured/nepals-first-disabled-friendly-buses-to-hit-kathmandu-roads-soon/). It was also reported in the media that Sajha Yatayat public transport system would begin night service to serve night-shift workers and passengers, operating from 8:30pm – 11:30 pm. (http://kathmandupost.ekantipur.com/news/2017-02-15/sajha-yatayat-begins-night-bus-service-in-valley.html).
the Philippines	While social equity was not a focus of earlier EST Forum reports, beginning at the 9th EST Forum, the Philippines reported on public transport discounts for senior citizens and Persons with Disabilities (PWDs), as well as designated coaches for women, senior citizens, and PWDs. By the 10th EST Forum, the Philippines noted that Point to Point buses had been rolled out with low floors and build-in ramps for PWDs to facilitate more efficient transport.
Pakistan	Pakistan reported to the 8th EST Forum that exclusive transport for women in Punjab and KPK had been implemented as a project of societies from female university students. Female police were also expected to be inducted by 2014-15. Pakistan's report to the 10th EST Forum noted that senior citizens and women would have special provisions in the newly developed mass transit systems, and that universalization of laws relating to inclusion of all segments of society would be carried out in the coming years.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	According to Singapore's report to the 8th EST Forum, all rail stations in Singapore offer barrier-free access to platforms through lifts and ramps. Pedestrian overhead bridges are being fitted with lifts, and by 2020, all public buses will be wheelchair-accessible. Seniors may be given more time to cross streets at signal lights (Green Man Plus scheme), and Silver Zones provide safer roadway environments for seniors. Singapore also provides fare concessions for the less privileged in addition to those with disabilities, children, students and seniors.
Sri Lanka	In Sri Lanka, seats are reserved on buses and trains for clergy, pregnant women and the disabled (6th EST Forum report). The 9th EST Forum report stated that walkways were being optimized for the visually impaired.
Thailand	Social equity has been an ongoing key component of Thailand's 2011-2020 Transport and Traffic Development Master Plan. During the 7th EST Forum, it was reported that special policies were in place for persons with disabilities and the elderly, but few details were available. Research in 2013 suggested that in Bangkok, high-priced MTR tickets made high-speed and efficient transport inaccessible for economically disadvantaged people, and that the high prices for high-speed rail tickets may also be a challenge to those who cannot afford them when the lines are launched. (http://www.tccc.or.th/the-future-of-thai-transportation-planning/)
Timor-Leste	While Timor-Leste has subscribed to the 3 ZEROs initiatives, and made accessibility a goal of the Transport sector's "Master Plan 2015", in the report to the 10th EST Forum, the country reported that there is need to improve infrastructure for different genders, the elderly and disabled, including walking paths, gardens, access to workplaces, etc.

Viet Nam	Fare reductions on public transport for the disabled and elderly were reported in the 7th EST Forum, followed by the "Circular of Ministry of Transport number 39/2012/TT-BGTVT dated 24 September 2012 about policies for the disabilities to use different transport modes" which summarized government policies towards disabled people, including the right to use priority seating on buses, reduced fares, and to receive assistance where necessary. (http://www.moj.gov.vn/vbpq/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=28005)
Goal-18: Encourage innovative financing mechanisms for sustainable transport	
Afghanistan	Financing has been an ongoing challenge for Afghanistan in devising and implementing its sustainable transport objectives. One area of specific mention in 2010 was that the foreign community was not particularly interested in supporting EST development in the country; in 2012, it was noted that financial institutions were not supporting clean vehicle promotion policies. Other plans all faced financial pressure. Public-Private Partnership (PPP) mechanisms were being researched to support I/M facilities, but finance and expertise in PPP management was lacking; furthermore, World Bank support was sought for planning and development of an improved railway network in Afghanistan. By the 8th EST forum, the country planned to initiative a feasibility study on carbon market finance for transportation projects.
Bangladesh	Innovative financing policies are developing in Bangladesh. The concept of PPP has progressed from draft version in 2014 to being enshrined in a PPP law that was passed in September 2015, with the support of the Public-Private Partnership office under the Prime Minister's Office. Meanwhile, tolls are coming into place in bridges and some highways, parking fees and policies are coming into effect in urban areas, and a Board for the Road Fund has been formed to determine how to utilize revenue earned from road users, especially on road maintenance and enhancement.
Bhutan	Bhutan has great need for financing in its public infrastructure programs. Although several programs have been established with MDBs, private sector funding has been sought through PPP mechanisms to help pay for projects. However, due to the limited market size of Bhutan, the private finance markets have not taken a large interest in projects. Other income has generated through parking fees in urban areas, and tax on fuel already in place.
Brunei Darussalam	The National Land Transport Plan identifies Brunei Darussalam's fuel subsidy as a major impediment to the development of public transportation and other environmentally sustainable approaches to transportation. The plan notes that there are strong economic, social and environmental arguments consistent with wider Government policy to ensure that consumers increasingly pay the full opportunity cost of their travel behaviour by removing the current fuel subsidy. This has proved politically controversial, however, especially in the context of economic slowdown in the country. The Plan recommends a full study be completed on the full costs to society of the fuel subsidy.
Cambodia	Cambodia has not reported on this goal to the EST Forums.
P.R. China	China has used subsidies for new energy vehicles, subsidies to public transport and subsidies to clean technologies and fuels as the primary means of encouraging change at the individual level towards sustainable transport. Parking fees and road tolls are also used to attempt to control transport demand and recoup costs. At the infrastructure level, low-cost financing is available. PPPs have been used increasingly in greenfield transportation projects, with over USD 25 billion invested through PPP mechanisms in such projects in 2014, mostly through build-operate-transfer agreements. By 2014, most private sector contribution was financed through short-term bank loans, often backed by government guarantees, but Beijing recently raised USD 1 billion for its subway system with three-year and five-year notes (Wong, 2014). China is currently undertaking a massive reform of its credit system to provide more confidence to institutional investors to participate more in PPP projects. (Wong, C.M. (2014, November 14). Beijing infrastructure prices $1b bond. FinanceAsia. Retrieved from http://www.nanceasia.com/News/392094,beijing-infrastructure-prices-1b-bond.aspx)

Indonesia	In 2015, Presidential Regulation No. 39/2014 was revised to encourage more foreign investment in infrastructure development. In the transport sector, foreign ownership of seaport facilities increased from 49% to 95% during a PPP concession period (KPPIP, 2016). Indonesia is also forming its development bank mechanism, merging the PT Sarana Multi Infrastructure non-bank financial institution with the Indonesia Investment Center to enable better access to municipal financing (social infrastructure), and to grow infrastructure and priority areas by lowering risks to the private sector and make less feasible government projects more attractive. Additionally, the KPPIP has been developed to undertake pre-feasibility studies, determine priority projects, determine funding schemes, and monitor and debottleneck projects so that they can be financed and rolled out.
India	India reported during the 6th EST Forum that it had established the Urban Transport Fund, meant to institutionalize fiscal and funding mechanisms to ensure financial sustainability of investments as part of its National Mission for Sustainable Habitat. India successfully created the Sustainable Urban Transport Programme, which was supported by the GEF, World Bank and UNDP to support EST development in India. During the 7th EST Forum, India also reported that it would fund bus procurement under an economic stimulus package.
Japan	Japan's financing efforts are mostly in-place. The country reported not only using public funds for reconstruction (6th EST Forum), but also private funds, PPP and PFI financing methods.
Republic of Korea	In its report to the 7th EST Forum, Republic of Korea described that it collected transportation, energy and environmental taxes to secure investment funds for transportation infrastructure. It also described the collection of traffic induction fees for commercial logistics centers that increased traffic pressure in urban areas. During the 6th EST Forum, the country also described loan guarantees to encourage nearshore ship construction. Other innovative financing strategies have not been introduced through the EST Forum process by Republic of Korea.
Lao PDR	In addition to cooperation with international funders, Lao PDR has also cooperated with MOE-Japan to develop a NAMA on transport in Lao PDR, and has sought out carbon credit funding in 2012 through the CDM.
Malaysia	Malaysia established its Green Technology Financing Scheme in the Malaysia budget 2010, and the budget was increased up to 2013. This fund includes efforts for the transport sector (7th EST Forum report). A Sustainable Mobility Fund for Public Transport Infrastructure development was established and reported in the 9th EST Forum report, and a PPP Unit coordinates PPP projects.
Maldives	In the 9th EST Forum, Maldives reported that it had made use of import duty adjustments to encourage electric vehicle import and discourage internal combustion motorized vehicles. Furthermore, international finance had been utilized to construct the China-Maldives Friendship Bridge project.
Mongolia	The 6th EST reports the following financing methods for transport programs: · Issue "Eco" stickers for all vehicles in Ulaanbaatar. Revenue from "Eco" stickers will be spent on traffic safety and prevention. · Exempt liquefied gas use vehicles from special taxes, but impose high taxes on diesel fuel use heavy load trucks. · Increase transportation-based taxation each year except for vehicles using liquefied, bioethanol and biodiesel fuel. The 10th EST Forum report indicates that parking revenue will also be used to fund sustainable road and transport infrastructure.
Myanmar	No specific EST financing initiatives have been introduced by Myanmar through this process. During the 10th EST Forum, Myanmar reported that it was working with the private sector to implement airport upgrades and other transportation investments, but the means of this investment was not clear.
Nepal	Since the 5th EST Forum, Nepal has had dedicated funding for road maintenance, managed by the Roads Board Nepal. Nepal also reported GEF funding for upgrading public transport fleet at that time. A one door policy for maintenance funds was reported at the 6th EST Forum, and PPP financing was hoped to be available for developing expressways for reasonable speed in 2012. Cable cars in Pokhara were also meant to be financed with a PPP model.

the Philippines	The Philippines have seen progressive action in finance for EST. The 5th EST Forum reviewed the Special Vehicle Pollution Fund; the 7th EST Forum report featured the Rod User's Tax Law – Special fund for air pollution control, which placed 7.5% of the revenue in the Special Vehicle Pollution Control Fund. At the 9th EST Forum, the Philippines reported that PPP projects were being rolled out including for the North-South Railway Project and Integrated Transport System (South and Southwest Terminals Projects).
Pakistan	Pakistan has gradually implemented innovative financing mechanisms for EST in the country. PPP financing models were built up from an administrative perspective, and utilized to expand the vehicle inspection and maintenance system in the country (6th EST Forum report); In the 7th EST Forum, a Green Fund was meant to be established to incentivize clean fuels and vehicles, involving the State Bank of Pakistan for Green Financing of the Transport Industry. It was noted in the 8th EST Forum report that nearly all of Pakistan's public transport system was owned and operated by the private sector in an intermediate form of PPP such as BOT. Underground parking in Karachi was also constructed on a BOT basis, and it was noted in the 9th EST report that the yellow line of the Karachi Transportation Improvement Project would be built under a PPP model. The 10th EST Forum report indicated that the National Highway Authority under the Ministry of Communications had developed regulations for the mechanism of financing in the form of BOT and BOO, and that both local and international investors were looking at the opportunity favorably.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore has not reported on this goal through the EST Forum process.
Sri Lanka	Sri Lanka has built up capacity to access carbon finance for implementing cleaner transportation, and encourages PPP projects to be implemented, although the private sector is slow to become involved (report to the 10th EST Forum).
Thailand	Thailand has focused on several innovative financing mechanisms for sustainable transport and to achieve some measure of Transport Demand Management. One key transformation is the excise tax system for cars, which introduced in 2016, is based on CO2 emissions and ability to utilize renewable transport fuel than engine displacement. The national green freight program is introducing a very innovative ESCO financing scheme, which would allow truck fleets to gain finances for implementing efficiency technologies, and pay back loans or investment with the energy savings they have earned over time. High-speed train projects are being financed using international investment, and PPP mechanisms were reported during the 7th EST Forum.
Timor-Leste	Although several projects were listed as funded by World Bank-GEF, ADB and other ODA loans in Timor-Leste's report to the 9th EST Forum, construction of the Dili New Port was reported in the report to the 10th EST Forum as having been done via a PPP investment model.
Viet Nam	Viet Nam has seen an increase in the number of Build-Operate-Transfer projects in the transport sector, and is now developing projects for accessing climate finance under its Clean Bus NAMA. However, the country still lacks experience in setting up financing mechanisms for sustainable transport infrastructure and operations.
Goal-19: Encourage widespread distribution of information and awareness on sustainable transport	
Afghanistan	Afghanistan has had an ancient public awareness campaign for EST, but has been called "ancient" for a number of years, with a promise to continue the public awareness campaign.
Bangladesh	Awareness of sustainable transportation has been cited as a major issue preventing the successful implementation of many of the other EST goals in Bangladesh. For many years, all transportation acts, policies and guidelines have been available on websites, and policies are prepared through a consultative process. Since 2014, it was reported that trainings, campaigns, radio and television would be used to promote more sustainable

	transportation. The next step is to ensure that academic materials are available for schools for youth to learn more about how to be safe and environmentally sustainable in transportation.
Bhutan	Bhutan has an ongoing media campaign to promote EST, but sufficient EST capacity is also required for the Transport, Environment and Roads sector.
Brunei Darussalam	As Brunei began the process of developing its new National Land Transport Plan, it became obvious that public awareness would be necessary to encourage the public to take low carbon travel modes, utilize eco-driving practices, support a shift to new fuels and technologies and overall participate in EST over the subsidized car culture currently in place. The Plan recommends green travel awareness campaigning giving as an example, eco-driving, developing a Green labelling program for consumers, initially for new vehicles, but extended to second-hand vehicles, and securing effective data collection and monitoring of the fleet.
Cambodia	Cambodia focused on road safety for its awareness program at the 5th EST Forum, focusing on awareness and consciousness when driving, to use helmets, mirrors and sidewalks, and to respect road signs and signals. Increasing awareness of the impact of particulate matter on health was motivating Cambodia to undertake research on this topic. It was noted at the 8th EST that a grant was awarded by the UN DESA to promote awareness and capacity on aspects of EST in Cambodia. This came in the form of training and workshops on drafting of the EST strategy. During the 9th EST forum, Cambodia expanded this description into broader public awareness, particularly of road safety, via social marketing, awareness workshops, press conferences and journalist training.
P.R. China	Public awareness about sustainable transportation has been galvanized by recent bouts of air pollution, and made stronger through public campaigns such as "green mobility" advertisements in cities. High-tech infrastructure such as high-speed trains and well-designed BRT systems across the country attract people who wish to travel in a modern and convenient way without facing traffic, and the China Green Freight Initiative of the Ministry of Transport makes frequent campaigns to convince road freight carriers to incorporate new technologies and practices to reduce their fuel consumption and emissions.
Indonesia	In addition to its many programmes about building up low-carbon and environmentally sustainable transport infrastructure, Indonesia utilizes opportunities such as "No Car Day" and "Public Transport Day" to raise awareness about EST. Indonesia has also implemented Smart Driving training for public transport operators that focuses on energy saving, safety and emission reduction. During the 7th EST Forum, it was reported that the country aims to train and socialize 50,000 people per year in smart driving. Indonesia has also rolled out car labelling including fuel consumption and CO_2 emissions per 100km (7th EST Forum report).
India	According to its report to the 7th EST Forum, India was providing central assistance to local governments at the rate of up to 80% for preparation of awareness campaigns. The country was funding the training of trainers and practitioners in EST practices, supporting the Annual Conference and Exhibition on Urban Mobility India, developing the Institute of Urban Transport to support ministry initiatives, and supporting 4 Centres of Excellence in Urban Transport. India also reported that it developed a national cycling policy along with public bicycle project toolkits, product design and specifications for public bike schemes, and financing. Finally, India reported that it holds annual awards for excellence in urban transport.
Japan	Japan's programs for awareness of EST have largely been in place for the period of the Bangkok 2020 Declaration. Namely, these programmes have included (1) 10 Eco-Driving Tips, promoting eco-driving every November, (2) Promotion of "Smart Move" – 5 approaches encouraging use of public transportation, using bicycles and footpaths, promotion of car sharing, bike sharing and other means of transport, innovation in long-distance travel, and recommendations of eco-driving and driving eco-friendly cars. (3) Human development – training human resources for leading local EST measures and awards of excellence; and (4) Database development for previous EST measures and outcomes for sharing with interested local communities.

Republic of Korea	Republic of Korea has many programs in place to encourage more sustainable transportation awareness. It actively promotes walking and cycling with campaigns, urban design and public transport. Urban planning channels people to use NMT practices. Transit information has been made available online and at transit facilities, and as it reported at the 9th EST Forum, it aims to make drivers uncomfortable while making passengers more comfortable.
Lao PDR	Public awareness was mentioned as part of Lao PDR's strategy and action plan for EST during the 5th, 6th and 7th EST Forums.
Malaysia	Malaysia has implemented many awareness campaigns on EST. At the 7th EST Forum, it reported that it held an International Conference on Sustainable Mobility (2010), an Electric Vehicle Roundtable, and established a Promotion and Public Awareness Working Committee reporting to the Green Technology and Climate Change Council chaired by the Prime Minster. The country aimed to undertake continuous awareness raising. Numerous government and non-governmental organizations undertake this work. In its report to the 10th EST, Malaysia noted that it established the Malaysian Green Technology Corporation to plan, promote and implement green initiatives.
Maldives	Maldives makes use of public bus and ferry networks and campaigns such as "no car days" to promote sustainable transportation. Pilot projects on various clean technologies are being undertaken, and boat shows are organized every one or two years through collaborative efforts of the government and private sector, where innovative technologies may be demonstrated (7th EST Forum Report).
Mongolia	Most of the initiatives and master plans (e.g. NAPCC) include provisions for distribution of information and educating the public, and EST Forum reports state that the government encourages their distribution.
Myanmar	Myanmar reported during the 5th EST Forum that it had held exhibitions, competitions and lectures on road safety, as well as lectures along city bus lines, driver training schools and high schools. More recently there have been public campaigns to encourage seat belt usage. (http://www.myanmarinternationaltv.com/news/road-safety-awareness-campaign-wearing-seatbelt)
Nepal	Nepal has generally not addressed this goal since the Bangkok 2020 Declaration, but in the 10th EST Forum, it reported that environmental awareness was being addressed in school curriculum, and that media was encouraged to report on EST information.
the Philippines	During the 6th EST Forum, the Philippines introduced the concept of Green Cities to promote EST. The report to the 7th EST Forum focused on formulation of the National EST Strategy, and the 8th EST Forum report focused on road transport patrol. By the 9th EST Forum, the Philippines noted that it was releasing messaging on EST projects for public communications, and finally at the 10th EST Forum, a major public information campaign was launched on the website of the Department of Transport, television, radio and newspaper to demonstrate the state of the country's transportation system and effects of traffic and pollution. Furthermore, the Build Build Build (BBB) Portal was launched to provide real-time monitoring and provide the public with information on the priority infrastructure projects of the current administration.
Pakistan	Pakistan launched a major public awareness campaign called PAKSTRAN which in addition to having one component about EST incorporated, is itself a website with information about many different initiatives of the government in the area of transport (8th EST Forum report). Additionally, Karachi reported that it had improved driver training programs, implemented an awareness program on road safety for school children and the general public, and had inducted traffic wardens to supplement and compliment traffic police. IUCN-Pakistan had undertaken a public awareness and institutional capacity on EST concepts as reported in the 9th EST Forum, and awareness campaigns on all upcoming mass transit projects was anticipated in the report to the 10th EST Forum.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.

Singapore	Singapore published its Land Transport Master Plan in 2013 with the key message of making public transport the choice mode of travel through better service, more connections and a more livable and inclusive community. The Sustainable Singapore Blueprint was published in 2009, including key message for a progressive shift of emphasis from private motorized vehicles towards active mobility and greener vehicles. (8th EST Forum report). Singapore has also implemented mandatory fuel consumption labeling on new cars (5th EST forum report).
Sri Lanka	Sri Lanka mentioned that Matale holds a "Vehicle Free Day" in its report to the 5th EST Forum, and holds regular awareness raising lectures and events along with published materials to promote EST (6th EST Forum report). On-road seatbelt wearing awareness signage has been used (7th EST Forum report), and the road safety committees cooperate with police services to raise awareness of road safety overall (9th EST Forum report). As of the 10th EST Forum, Sri Lanka reports that it is building up an IT platform to distribute information about EST.
Thailand	Strategy 6 of Thailand's EST Master Plan (2013-2018) is to promote public awareness of the environment. This has been done in Thailand through promotion of EST infrastructure such as public transport and shared bike systems/bike lanes, training of passenger and freight vehicle drivers in eco-driving practices, green freight and vehicle labelling, pilot projects and other practices.
Timor-Leste	Timor-Leste's report to the 10th EST Forum notes that awareness raising to the public on friendly and safe transportation are underway, and children and youth are being educated on traffic systems and safe transport.
Viet Nam	With motorcycle and car ownership seen as a sign of success, or simply necessary, for many people in Viet Nam, awareness about environmentally sustainable transportation is still low. The Ministry of Transport released the "Decision of Ministry of Transport number 4088/QD-BGTVT dated 12 December 2013 about the action plan for sustainable development for the period of 2013 – 2020" and the country is also focused on the green growth for period of 2016 – 2020; responsible climate change for 2016 – 2020 in the hopes of raising more awareness. Meanwhile, green freight and eco-driving has been improved through workshops on eco-driving in the country.
Goal-20: Develop dedicated and funded institutions that address sustainable transport-land use policies	
Afghanistan	According to Afghanistan's report to the 8th Regional EST Forum, institutions were largely in place to address sustainable transport-land use policies. The legal system on ESIA was in place and was being upgraded, capacity enhancement activities on strengthening ESIA procedures were being initiated, and plans were in place to continue these enhancements – yet the country lacked professional capacity in the field of ESIA planning, implementation and monitoring.
Bangladesh	Bangladesh is building up institutions for land use policies and transportation. From an education standpoint, 17 motor driving training institutes are in place, and several training institutes for land-use have been set up under the Ministry of Land. In its 10th EST Forum, it was reported that the Dhaka Transport Coordination Authority has been created to act as a unitary body responsible for land use and transport planning, and several training institutes have been established for land use and transport planning.
Bhutan	As of the report of the 9th EST forum, Bhutan did not have one office or officials dedicated to EST.
Brunei Darussalam	The National Land Transport Plan and 2015 Land Transport White Paper recognize that current institutions are not adequate for implementing integrated transportation planning, and propose to create an executive agency called Transport for Brunei that coordinates the detailed planning, construction, operation, maintenance and monitoring of all land transport infrastructure and services in Brunei. Meanwhile, the Centre for National Transport Statistics would lead the framework and depository for transport data, surveys and statistics for undertaking research and monitoring the implementation of transport policy and measures. Finally, a Green Vehicle Technology Office is recommended, while establishing closer joint work with the private sector.
Cambodia	Cambodia has not reported on having a specific agency responsible for EST.

P.R. China	As part of China's efforts to reduce GHG emissions and fuel consumption it has instituted energy saving and emission reduction programs in many ministries of the national government. This has had the effect in some cases of coordinating transport-land use EST policies, but lack of communication between government departments and agencies sometimes leads to conflicting standards, practices or outcomes of financial incentive plans.
Indonesia	Indonesia has established interlinking policies and laws that help to implement EST. Presidential Regulations form the legal basis for national policy, and the country aims to improve local implementation through capacity building, improved funding mechanisms and demonstration projects. The MoEF has executed a Blue Sky Program since 1992 that aims to control air pollution, including from mobile sources. The KPPIP has been established to facilitate PPP finance and reduce bottlenecks in government projects.
India	India reported during the 8th EST Forum that urban transport is not listed in the Constitution of India, meaning that responsibilities for transport are distributed by mode. The Ministry of Urban Development has issued a National Urban Transport Policy (2006) with the aim of bringing about comprehensive improvements in urban transport services and infrastructure, and the GEF, UNDP and World Bank-supported Sustainable Urban Transport Project has been aimed at achieving a paradigm shift in India's urban transport systems in favour of sustainable development (http://pib.nic.in/newsite/PrintRelease.aspx?relid=113626) including strengthening and building capacity of national, state and city governments in planning, financing, implementing, operating and managing low carbon transport systems, and assisting states and cities to prepare and implement certain green transport projects.
Japan	Japan's governance for EST has been in place even before the Bangkok 2020 Declaration. The National Institute for Land and Infrastructure Management, MLIT, has conducted funded research on (1) Reduction of CO_2 emissions from Road Transportation, (2) Research of Implementation and Promotion of Life-Cycle Assessment of Social Capital.
Republic of Korea	According to the Republic of Korea's report to the 5th EST Forum, the Presidential Committee on Green Growth is an inter-ministerial coordinator tasked with implementing the Framework Act for Low-Carbon Green Growth. Meanwhile, The Ministry of Land, Infrastructure and Transport is responsible, based on a Special Act on Metropolitan Regional Transport Management, for long-term basic plans on vision and strategy and 5-year mid-term implementation plans. It provides grants related to Metropolitan Regional Transport Projects such as Roads (50%), Rail (70%), Transfer centers (30%) and BRTs (50%). It also manages laws and regulations related to urban transport, TDM, Public transport cards, and parking lot and space availability. Regional governments (Seoul and Incheon) plan and implement transport projects within their jurisdictions, Gyeonggi-do has 27 cities and 5 counties which share responsibilities of transport projects and management, and the Metropolitan Transport Association deals with cross-jurisdictional transport issues. (Reported at the 9th EST Forum). Laws enacted supporting EST include: · Act on the Support and Promotion of Utilization of Mass Transit System · Promotion of the Use of Bicycles Act · Act on Promotion of the Pedestrian's Safety and Convenience · Act on Promotion of the Transportation Convenient of the Mobility Disadvantaged · Urban Traffic Improvement Promotion Act · National Transport Efficiency Act · Act on the Development and Utilization of Railway Station Areas.
Lao PDR	According to the Lao PDR report to the 6th EST Forum, the Division of Transport Techniques and Environment (DTE) was established in 2008 to support EST. The National Strategy and Action Plan on Environment and Transport, Lao PDR was screened in May 2011 by the Deputy Prime Minister and was awaiting official endorsement. The draft EST strategy was officially submitted to the Lao PDR government, which would consider the proposal during the cabinet meeting in 2015 (9th EST Forum report).

Malaysia	Malaysia has reported numerous agencies addressing EST in the country, and various laws and regulations guiding its roll-out. As of the 7th EST Forum, Malaysia noted that Environmental Impact Assessments would be a compulsory requirement for major transport projects.
Maldives	While strategies and plans have been put in place at the national level, it is not clear if environmentally sustainable transportation has its own dedicated institution besides the Ministry of Transport and Communication, Ministry of Environment and Energy or Ministry of Housing and Infrastructure.
Mongolia	The 8th EST reports that the MOTI (Mongolian Transport Institute) will be established as a government research institute to promote sustainable and integrated transportation system – legislation process is scheduled by the end of 2013. The 10th EST Forum Report indicated that EIA had been completed for major transport projects
Myanmar	According to the 9th EST Forum report, a number of ministries are responsible for EST development, although it was the Ministry of Transport that took the coordination role for the MYT_Plan that includes an environmental framework for transportation.
Nepal	Throughout the EST Process since the Bangkok 2020 Declaration, Nepal has not addressed this goal. It should be noted that EST inputs have been prepared by the Ministry of Physical Infrastructure and Transport (8th EST Forum), and jointly by the Ministry of Urban Development and Ministry of Population and Environment for the 10th EST Forum, indicating some leadership in this area. However, the Report to the 10th EST Forum indicates that this goal has not yet been addressed.
the Philippines	The Philippines have been strong on developing institutions for EST support. At the 5th EST Forum, the country reported that it had a Special Vehicle Pollution Control Fund, it had established a Center for Research on EST (CREST), as well as the Presidential Administrative Order No. 254, on the Formulation of a National Environmentally Sustainable Transport Strategy. By the 9th EST Forum, the Philippines had established its Environmentally Sustainable Transportation Initiatives Unit (ESTIU) aiming to complete guidelines and processes for project approval and fund access. Finally, in its report to the 10th EST Forum, Philippines noted that the ESTIU had begun to receive funding under the General Appropriations Act of the Department of Transport, improving its organizational sustainability.
Pakistan	Pakistan has a number of agencies and ministries responsible for EST implementation. The Lahore Transport Company and the Pakstran Company were noted as important ones in Pakistan's report to the 8th EST Forum, with the JICA-funded Karachi Circular Railways initiative also noted. Pakistan was at that time undertaking EIA on the Pak-China Economic Corridor as well as the Karachi to Lahore Motorway Project. The report to the 10th EST Forum also noted that a road safety secretariat had been established by the Ministry of Communications.
Russian Federation	The Russian Federation has not submitted reports to the EST Forum process, so there is no data to report.
Singapore	Singapore's Land Transport Authority has been responsible for reporting on EST achievements, but there are other ministries and authorities involved. Singapore highlighted EIAs that have been conducted for major transport infrastructure projects as a type of governance system for EST in its reports to the 8th and 10th EST Forums.
Sri Lanka	There are several ministries and agencies responsible for EST in Sri Lanka. The report to the 10th EST Forum indicates that steps are being taken to implement EIA for transportation projects where applicable

Thailand	During the 6th EST forum, Thailand reported that it had launched a Sustainable Transport Committee Chaired by the permanent secretary of the Ministry of Transport. Furthermore, it had launched a National Transport Master Plan (2011-2015) and an Environmentally Sustainable Transport Master Plan (2013-2018), focusing on 6 major strategies: · Upgrading capability of agencies and personnel for the development of an EST system · Establish appropriate plans and mechanisms for interfacing and monitoring transport and transport work plans/measures/projects and move them forward to implementation · Establish comprehensive and interconnected transport infrastructure · Efficient transport management for sustainability and GHG reduction · Transport R&D and adoption of environment-friendly innovations and technologies · Promote public awareness of the environment.
Timor-Leste	According to Timor-Leste's report to the 7th EST Forum, the Ministry of Transports and Communications is responsible for EST policies and implementation. It produced a "Master Plan-2015" that was reported at the 9th EST Forum. During the 10th EST Forum, it has been reported that the government and National University have initiated cooperation on climate change and biodiversity inventories, and it reported that public administration was being decentralized to municipalities in order to reduce public servant travel.
Viet Nam	As of the 9th EST forum, there were no dedicated and funded institutions for addressing sustainable transport-land use policies and implementation, although a Law on Environmental Protection had been passed in 2014 that should strengthen efforts.

Annex 2: EST Progress Points Overview

EST Progress Points are a simple indicator used to rate the progress that countries have made toward the 20 goals of the Bangkok 2020 Declaration based on their own country reports to the EST Forums since 2010, culminating in the Intergovernmental Tenth Regional Environmentally Sustainable Transport (EST) Forum in Asia (http://www.uncrd.or.jp/index.php?page=view&type=13&nr=984&menu=232).

Data Source:
Each participating country has submitted a country report that for each of the Goals includes the following information:

Figure 9 A sample of the Country Report submitted for Goal 1 of the Bangkok 2020 Declaration

Goal No.	Goal Description	Voluntary Progress/Achievements/Major Initiatives, including any transport master plans, development of special transport corridors, in Implementing the Bangkok 2020 Declaration from Nepal EST Forum 2015 to Lao EST Forum 2017.	
I. Strategies to Avoid unnecessary travel and reduce trip distances			
1	Formally integrate land-use and transport planning processes and related institutional arrangements at the local, regional, and national levels	Any action had been taken so far? ☐ Not yet ☐ Some progress (design – piloting) ☐ Largely in Place ☒ Fully Completed (Please Check the box)	Barriers/Challenges faced in implementation:

EST progress points are based on the response of each country to the question "Any action had been taken so far?" Where possible responses can include:

- Not Yet
- Some Progress (design-piloting)
- Largely in Place
- Fully Completed

These responses naturally indicate progress towards completing progress towards one of the goals, where "not yet" indicates no progress, and "fully completed" indicates excellent progress. Each country receives points for reporting that progress has been made on each goal. 1 point for "not yet"; 2 points for "some progress"; 3 points for "largely in place"; and 4 points for "fully completed". The self-rated score of each goal for each country was recorded.

During the research, it was discovered that some countries could demonstrate linear progress over time through the series of Country Reports that they had submitted over the EST Forums since 2010. If a country set out a plan in an earlier report, and progressively showed that more action had been taken from one report to the next, then an extra point was added to the "progress point". This is not to indicate that a country had done "better" than other countries, but rather indicates more confidence in the data because a particular storyline had been followed through the course of the EST forum process. In rare instances, where a country had reported on progress on a goal, but the content was not related to the goal, then a point was subtracted, because the non-related information decreased confidence in the overall trend. The adjustment point is not meant to have a dramatic

effect, and is weighted very lightly in the total average progress points for each country and for each goal.

What are Progress Points for?

Progress points are a simple means of understanding which goals are receiving more attention in the reports of each country to the EST forum on the Bangkok 2020 Declaration Goals. Goals that receive more total points are those that are getting more attention. Goals that receive fewer points are getting less attention. Figure 3 in the report notes the average progress across all countries for each goal. Goal 13 (road safety), with an average score of 2.6, could be seen across Asia as being "Largely in Place" – indicating a great deal of progress over the course of the Bangkok 2020 Declaration Period. However, Goal 14 (monitoring health impacts), with a score of about 1.7 received much less attention in the reports of the countries, indicating that "some progress – design/piloting" has been done, on average, across the region.

What do Progress Points mean for countries?

Progress points are meant to provide an overall indication of actions that countries are taking on the goals of the Bangkok 2020 Declaration, based on their own reports, from a very high level perspective. Each country does have its own context in which it develops, and the progress points are an indicator of the country's own reports, rather than the opinion of an external evaluator. Progress points also offer perspective on a country's consistency over the course of the EST process since 2010. Countries that have demonstrated projects and plans in their country reports moving from "no action" to "some progress" to "mostly in place" have received a slight increase in progress points.

Progress points on a per-goal basis also help external stakeholders to understand more quickly where countries may need more technical or financial assistance in order to achieve more sustainable transportation. Having an overview of progress made by countries in different areas might help those countries and their external stakeholders to put more attention on the areas that have so far received less attention, for whatever reason.

Will progress points increase over time?

As countries make progress towards the goals of the Bangkok 2020 Declaration in their countries, they will make more comprehensive reports with the details of their domestic successes to the EST Forum, and will indicate more progress being made in the "action taken" section of the report. As countries are able to report more goals as "mostly in place", their progress points will naturally increase.

Annex 3: Country Progress Point Allocations

This table reflects the sum of progress points self-reported by countries across all 20 goals, as well as the progress-adjustment of points based on the long-term connection between the reports since the 5th EST Forum. If countries demonstrated consistent reporting from year to year, and marked progress on consistent initiatives within goals, progress-adjusted point were adjusted slightly higher, because consistent reporting offers a higher level of confidence in the data reported.

Country	Self-reported sum of points	Progress-adjusted sum of points
Afghanistan	37	37
Bangladesh	45	47
Bhutan	39	40
Brunei Darussalam	42	42
Indonesia	38	40
Japan	62	65
Malaysia	56	58
Mongolia	40	42
Myanmar	39	40
Nepal	37	39
Pakistan	43	45
Singapore	58	60
Sri Lanka	39	41
Thailand	44	46
the Philippines	41	45
Timor-Leste	40	40
Viet Nam	41	44

Asian EST Initiatives

Collaborating with the Ministry of the Environment, Government of Japan, other governments, and relevant national / international organizations and in line with the recommendations made in the Aichi Statement (August 2005) and the Manila Statement (January 2004), UNCRD is promoting EST in Asia by initiating a range of activities, including formulation of national strategies with short and long-term actions and establishment of a Regional EST Forum.