

## CHAPTER

## 3

# FINANCING TRANSPORT INFRASTRUCTURE

**IN THE LAST FEW DECADES, TRANSPORT INFRASTRUCTURE HAS PLAYED A CRUCIAL ROLE IN CONTRIBUTING TO THE RAPID GROWTH AND DEVELOPMENT OF THE ASIA-PACIFIC REGION. GOVERNMENTS THEREFORE RECOGNIZE THAT BUILDING AND MAINTAINING IMPORTANT TRANSPORT NETWORKS IS OF THE UTMOST IMPORTANCE. HOWEVER, THE ASSOCIATED COSTS ARE CONSIDERABLE, REPRESENTING A SIGNIFICANT SHARE OF TOTAL PUBLIC EXPENDITURE.**

Against this backdrop, this chapter will review recent trends in transport infrastructure financing. Firstly, historical investments in the region will be presented, along with an analysis of traditional options for financing transport infrastructure. Secondly, the role of the private sector as an alternative source of financing will be further investigated, and different policy options for attracting and steering private sector contributions will be outlined. Finally, the growing importance of intra-Asian cooperation for addressing regional transport infrastructure challenges will be reviewed.

# ASSESSING THE STATE OF TRANSPORT INFRASTRUCTURE INVESTMENTS

*The several hundred billion dollar annual question*

## HISTORICAL SPENDING REQUIREMENTS

Before looking at the different options for financing transport infrastructure, it is first worth considering overall investment requirements for transport infrastructure in the Asia-Pacific region. Unfortunately, sizing these requirements is not a straightforward task, due to limited data about the magnitude of these investments. As a result, different approaches have been adopted to obtain estimates of transport infrastructure investments.

One source of useful data in this respect is the IMF's government finance statistics, which provides the allocation of budget spending per sector (including transport) for a few countries in the region. Based on these data, it can roughly be estimated that the respective governments of the region spend around \$360 billion per year (or approximately 1.5 per cent of the current GDP) on transport.<sup>1</sup> Note that this figure is only a regional average that does not reflect the significant discrepancies in the level of investments among these countries. Indeed, some countries have experienced tre-

mendous infrastructure expansion, while others have had more modest growth and others still have seen their networks, particularly railways, shrink (please refer to the first chapter of this publication for more details on network development in the region). Furthermore, the IMF data does not elaborate on the distribution of spending per mode of transport.

A relatively simple model to overcome the data limitations utilizes recent developments in infrastructure stocks to estimate the trends in both new transport infrastructure investments per country, and yearly maintenance requirements. The assessment requires that the infrastructure stocks be converted into capital costs using average unit costs.<sup>2</sup> Since land transport is the primary focus of this year's publication, only rail and road transport networks (as measured by road and rail network lengths) have been analysed using the model. The results for each sub-region are shown in the tables below.

### Estimates of current average annual investment and maintenance requirements in the ESCAP region

**TABLE 3.1**  
**ROAD INFRASTRUCTURE**

**SOURCE:**  
ESCAP estimates - see explanatory notes for country groupings.

ESCAP SUB-REGIONS	NEW INFRA \$BN	NEW INFRA (%GDP)	MAINTENANCE COST \$BN	MAINTENANCE COST (%GDP)	TOTAL \$BN	TOTAL (%GDP)
East and North-East Asia	95.5	0.65%	95.5	0.65%	144.3	0.99%
North and Central Asia	22.6	1.02%	22.6	1.02%	38.5	1.74%
South-East Asia	27.8	1.21%	27.8	1.21%	41.4	1.81%
South and South-West Asia	51.6	1.57%	51.6	1.57%	107.4	3.26%
Pacific	1.8	0.12%	1.8	0.12%	11.5	0.73%
<b>GRAND TOTAL</b>	<b>199.3</b>	<b>0.83%</b>	<b>143.9</b>	<b>0.60%</b>	<b>343.2</b>	<b>1.43%</b>

**TABLE 3.2**  
**RAIL INFRASTRUCTURE**

ESCAP SUB-REGIONS	MAINTENANCE COST (\$BN)	NEW CAPACITY (VALUE) \$BN	TOTAL (VALUE) \$BN	TOTAL (%GDP)
East and North-East Asia	3.7	3.0	6.6	0.05%
North and Central Asia	4.5	0.7	5.2	0.23%
South-East Asia	0.5	0.2	0.7	0.03%
South and South-West Asia	3.7	0.8	4.4	0.13%
Pacific	0.3	0.0	0.3	0.02%
<b>GRAND TOTAL</b>	<b>12.7</b>	<b>4.6</b>	<b>17.3</b>	<b>0.07%</b>

**SOURCE:**  
ESCAP estimates - see explanatory notes for country groupings.

Significant assumptions have been made in computing the above estimates and so these results should be treated with caution. Nevertheless, three major conclusions can be drawn from the above tables:

1. South and South West Asia are the subregions facing the highest transport requirements in terms of GDP.

2. The focus of the ESCAP region in the recent past has been on roads, with this sector overwhelming the rail sector in terms of estimated spending requirements. The rail sector represents only around 5 per cent of yearly estimated road spending. In fact, most rail requirement estimates are related to maintenance as only a few countries, such as China, India, Kazakhstan, Turkey, and Turkmenistan, have significantly invested in expanding their rail network. Table 3.2 should, however, not be interpreted as a forecast for future spending on rail infrastructure, as rail transport has gained momentum recently with the emergence of new high speed passenger train routes and dedicated freight corridors. In addition, the environmental advantages of rail transport might contribute in making it a higher policy priority in the years to come.

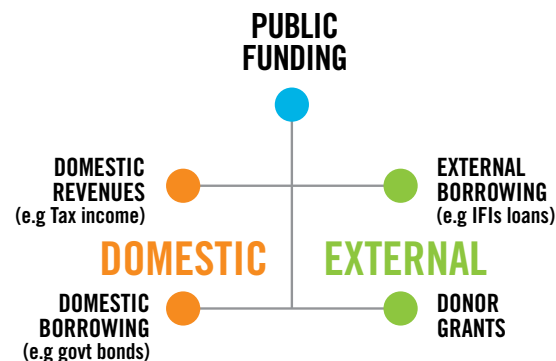
3. Maintaining existing road assets is almost as costly as building new infrastructure. Maintenance amounts to 40 per cent of the total expenditure for road infrastructure on

average. The estimated maintenance cost requirements for nine countries of the region actually exceed 2 per cent of their GDP (up to a maximum of 7.5 per cent). Such high levels of maintenance expenditure are likely to be unaffordable for most public budgets and might explain why some countries make significant savings on maintenance costs at the expense of road quality.

## TRADITIONAL SOURCES OF FINANCING

Having estimated the spending requirements, it is worth considering the different options for funding transport infrastructure. Traditionally, transport infrastructure investments have been financed via public resources for which different funding options are possible, as described in the figures below.

*Critical but not sufficient*



In most cases, domestic funding makes up the significant share of public funding. However, it is difficult to clearly identify whether borrowing has been made for transport investments or for projects in another sector as all the domestic resources are reported together. Therefore, the following paragraphs will focus on the external financing side of public funding, specifically that provided by international finance agencies and donors.

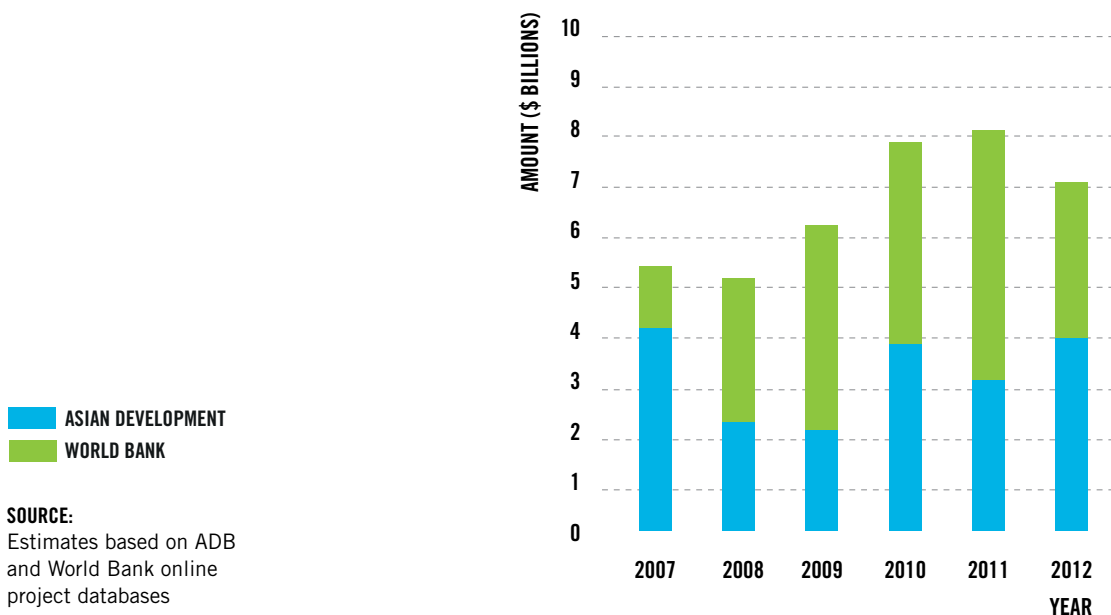
### International finance institutions

International Finance Institutions (IFIs) have supported the financing of transport infrastructure projects in the Asia-Pacific region for many years. To estimate the importance of this source of financing for the countries of the region, projects supported by the Asian Development Bank (ADB) and the World Bank (WB) have been reviewed. These are the only two multilateral development banks covering the entirety of the ESCAP region and provide a fair basis for understanding the magnitude of international public finance in transport infrastructure financing for the region.<sup>3</sup> In order to perform such analysis, a database of approved projects for the period 2007-2012 has been created, using data from their online project databases and cross-referenced with their annual reports.<sup>4</sup> The key conclusions that can be drawn from the database are as follows:

On average, \$7 billion are provided annually by these two multilateral development banks (MDBs) for transport projects in the ESCAP region, which is more or less equally distributed between the two banks. Transport remains one of the key areas of intervention for these institutions. For example, in 2012, approximately 30 per cent of total ADB finances were spent on the transportation sector.<sup>5</sup> The respective share of total approved financing in the transportation sector from 2007-2012 is shown in Figure 3.2:

Although China and India are the main recipients in absolute terms (both attract more than \$1 billion per year on average), the amounts channelled through these countries represent only a small share of their estimated investment requirements (respectively less than 1 per cent for China and less than 2 per cent for India) compared to other countries in the ESCAP region. As shown in Table 3.3, the funding provided by the MDBs as a share of their estimated annual investment and maintenance requirements is highest for the Pacific and the North and Central Asia subregions. Considering other subregions, countries such as Viet Nam, Mongolia, Afghanistan and Bangladesh have benefited largely from IFI funding in developing their transport infrastructure. That is, of the aforementioned four countries, funds provided by the ADB and WB represent at least 10 per cent of their estimated requirements.

**FIGURE 3.2**  
**ADB AND WORLD BANK FINANCING FOR TRANSPORT PROJECTS (2007-2012)**



**TABLE 3.3**  
**ADB AND WORLD BANK YEARLY AVERAGE INVESTMENTS IN THE TRANSPORT SECTOR IN \$MILLION**  
**(2007-2011)**

ESCAP SUB-REGIONS	ADB	WB	TOTAL	% ESTIMATED REQUIREMENTS
East and North-East Asia	572	788	1,360	0.96%
North and Central Asia	798	911	1,708	24.7%
South and South-West Asia	1,257	1,274	2,531	3.5%
South-East Asia	638	592	1,230	2.6%
The Pacific	106	39	145	64.3%
<b>TOTAL (incl. regional project)</b>	<b>3,387</b>	<b>3,604</b>	<b>6,991</b>	

**SOURCE:**

Estimates based on ADB and World Bank online project databases and ESCAP calculations

**NOTES:**

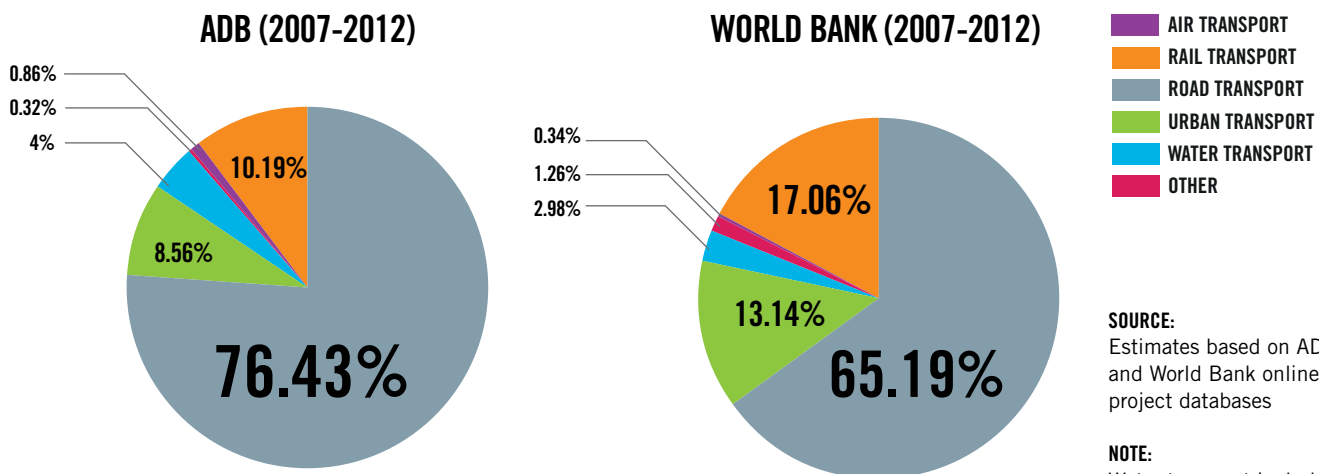
The table only includes the countries which have benefited from ADB and WB in the last few years. For instance, the Pacific region in this table does not include Australia or New Zealand. Estimated requirements cover only the road and rail sectors.

While the vast majority of funding has been channelled in the form of loans (including concessional loans), the multilateral banks have also provided a significant amount of grant resources to support transport initiatives. Overall, \$200 million per year has been directed either in the form of technical assistance or as grants. The main beneficiaries of these grant resources have been countries such as Afghanistan, Tajikistan, Kyrgyzstan, Lao People's Democratic Republic and the Solomon Islands.

In regard to modal split, the road transport sector remains by far the majority share sec-

tor for both the ADB and WB over the given period, confirming earlier mentioned conclusions. Nevertheless, the share of investment by the rail sector is significant, at more than 10 per cent for both institutions. It is also interesting to note that the Urban Transport subsector is gaining in importance. Though the subsector attracted only 6 per cent of their financing in 2007-08, its share grew to 18 per cent in 2011-12. Although a further breakdown of the Urban Transport sector by mode could not be conducted due to data limitations, the above information provides some insight into the significant role of Urban Transport in the coming decade.

**FIGURE 3.3**  
**MODAL SPLIT OF ADB AND WB INVESTMENT IN TRANSPORT (2007-2012)**

**SOURCE:**

Estimates based on ADB and World Bank online project databases

**NOTE:**

Water transport includes both maritime and inland water transport projects.



World Bank

### Donor resources

In 2011, 25 Asian and 16 Pacific countries were net recipients of official development assistance (ODA), receiving a total of \$27.4 billion and \$2.2 billion in assistance respectively.<sup>6</sup> According to the latest global data, 5.7 per cent of global assistance resources are devoted to transport and communication infrastructure. Applying this global ratio to the Asia-Pacific region, it can be estimated that approximately \$1.7 billion of development assistance is allocated to transport in Asia and the Pacific annually. Against the substantial transport resource needs of the region, grants may appear relatively limited in size. However, they remain critical for the poorest Asian countries where ODA easily exceeds 5 per cent of their Gross National Income. These countries include Afghanistan, Bhutan, Cambodia, Kyrgyzstan, the Lao People's Democratic Republic, and Tajikistan.

In conclusion, the preceding paragraphs give a sense of the significant role that international financing institutions and donors play in supporting transport infrastructure development. The involvement of these actors has certainly been instrumental to many of the transportation projects that have taken place in Asia and the Pacific, and are particularly crucial for the poorer countries of the region. However, it is worthy to note that the amount they are providing remains limited compared to the overall investment requirements of the region. The following sections present two approaches that can be adopted to complement traditional public funding: greater involvement of the private sector and intra-Asian collaboration on transport projects.

# BOOSTING PUBLIC-PRIVATE PARTNERSHIPS IN THE TRANSPORT SECTOR

Given the massive financial requirements for developing and maintaining transport infrastructure assets, and the limited budgetary resources and borrowing capacities of governments, many countries have begun to use Public-Private Partnerships (PPPs) as alternative financing and delivery options.

In the context of transport infrastructure, PPPs refer largely to contractual arrangements between the public and private sectors, whereby the private sector provides building or rehabilitation works in exchange for operating rights over a relatively long period of time (often referred to as concessions). At the end of this period, the asset is transferred back to the public authorities. The above model is typically classified under the 'Build and/or Rehabilitate, Operate and Transfer' PPP model and its related variants, which will be the focus below.<sup>7</sup>

*An improved implementation modality more than a financial mechanism*

## REASONS FOR ADOPTING THE PPP APPROACH

### Access to private sector capital

Under PPPs, infrastructure projects are financed using private resources, and as such PPPs are considered a means to reduce pressure on the public budget or to realize projects which would not be otherwise feasible due to public financial constraints. Indeed, the immediate cash spending by the public sector for infrastructure is very limited, as the design and construction costs are largely paid for by the private sector. However, to help make the project financially viable, the private operator has to be remunerated for the services or goods provided via direct payments, such as road tolls from road users, and/or via government support, such as regular payments based on the availability of the transport infrastructure. In the latter case, the up-front cost is translated into a

series of future regular payments, which are in fact comparable to a traditional loan repayment scheme. Therefore, careful estimations of future liabilities should be conducted as part of any PPP assessment.

### Better allocation of risks

One of the key arguments for supporting PPPs is that the risks of infrastructure development are allocated to the economic partner who is best equipped to handle them. For instance, some past experiences suggest that construction risks could be more adequately managed by private operators, thereby making projects more likely to be delivered on time and on budget.<sup>8</sup> Management or procurement efficiencies are among the reasons explaining such differences in delivery performance between the public and private sectors. On the other hand, public authorities are usually in a better position to manage regulatory risks such as those linked to construction permits. They are also better placed for acquiring the necessary land, which is particularly important for transport projects. However, there is no 'one size fits all' type of risk allocation, and the distribution will largely depend on the specific characteristics of each project and the comparative advantages of each party. The principle should be that risks are allocated to create the incentives that will maximize each partner's capacity to reduce the overall costs of the project, while at the same time protecting the public interest.

### Efficiency gains

Building on the expertise and comparative advantages of each partner, PPPs can yield substantial cost saving benefits. For instance, the innovative capacity of private operators could be leveraged in the planning, design and delivery phases to reduce the life-cycle cost of the project. Since the private operator is responsible for paying future maintenance costs, the private operator has an incentive

to integrate future cost implications in the design of the project. This is a way to solve 'short-termism' issues related to infrastructure building whereby cheap initial capital expenditures are encouraged without due regard to future maintenance cost consequences. Such efficiency gains are made possible as PPP contracts are specified in terms of outputs (that is, focusing on the service to be provided), rather than inputs (that is, the detailed specification of the infrastructure), thereby allowing flexibility for the private sectors to apply the best possible technical and operational solutions to achieve the desired results.

*Yearly investment in PPPs has multiplied by 2.5 since 2001*

## RECENT TRENDS

### Back at record high level

The resources mobilized through the PPP financial mechanism have been significant for the transport sector over the period 2001-2011, supporting some 550 projects in the ESCAP region at a total cost of close to \$200 billion. After a brief dip in spending resulting from the financial crisis (2007-2009), the levels of investment with private participation are approaching historical highs, with more

than \$20 billion mobilized in 2011, despite a slight decline in the number of projects.

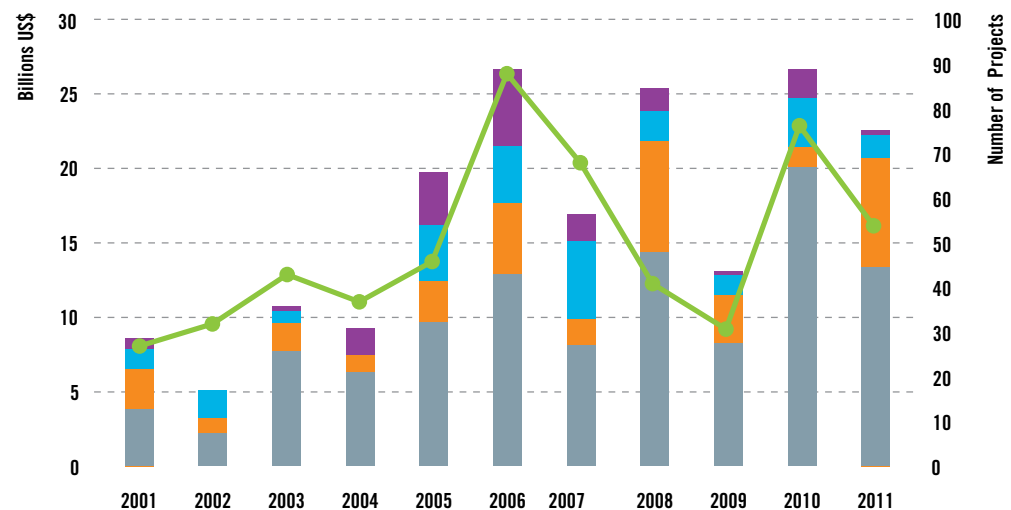
With regards to modal split, the lion's share of investment (58 per cent) was allocated to the road sector (mainly highways) followed by railways (18.7 per cent), sea ports (14.4 per cent) and airports (8.4 per cent). It is worth noting that railway projects are few in number but larger in size, averaging above \$700 million compared with the average road and sea port project costing around \$200 million.<sup>9</sup>

### Geographically concentrated

For the period 2001-2011, at least 19 countries in the ESCAP region have involved private sector actors in infrastructure development. However, as illustrated in Figure 3.5, the geographical intensity is largely unbalanced, with India attracting close to one third of total investments. Altogether, the five most active countries in the region channelled more than 90 per cent of the total volume for the period. It is worth noting that investments have targeted rehabilitation of existing assets, as well as the construction of new ones, in near equal proportions.

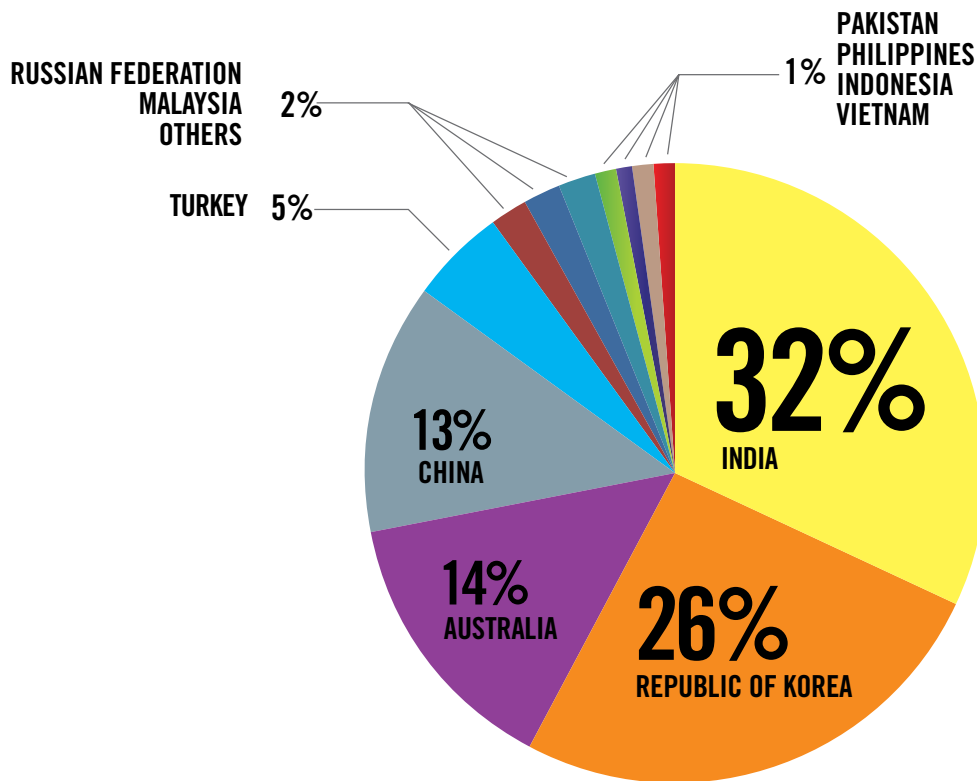
**FIGURE 3.4**  
TRENDS OF PPPs IN TRANSPORT INFRASTRUCTURE IN THE ASIA-PACIFIC REGION

ROAD  
RAILROADS  
SEAPORTS  
AIRPORTS  
NUMBER OF PROJECTS



**SOURCE:**  
ESCAP estimates based on PPIAF Database, PIMAC presentations and Infrastructure Australia website<sup>10</sup>

**FIGURE 3.5**  
**GEOGRAPHICAL DISTRIBUTION OF PPPS IN TRANSPORT INFRASTRUCTURE (2001-2011)**



**SOURCE:**  
 ESCAP estimates based on PPIAF Database, PIMAC presentations and Infrastructure Australia website

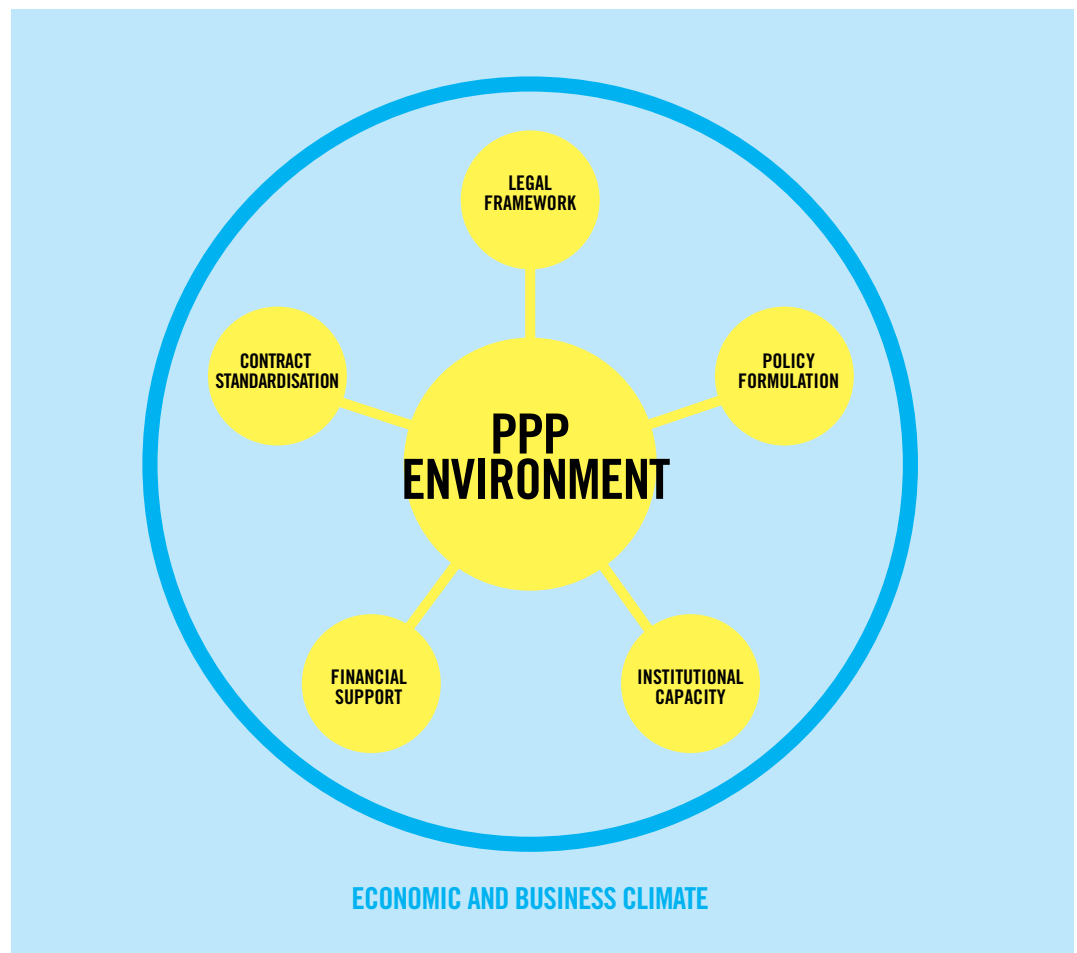
Only a limited share of investment needs is currently covered by PPPs despite significant amounts being channelled via such financial frameworks. Even in India, no more than 20 per cent of investments in the road sector were financed by private finance during the 2007-2012 plan.<sup>11</sup> Similarly, in the Republic of Korea, PPP investments in economic infrastructures (including transportation assets) dropped to around 10 per cent (2011 figure) from 15 per cent earlier. Based on these figures, it is clear that additional efforts are required should the countries in the region wish to enlarge the geographical use of the PPP structure or scale-up the amount delivered through these mechanisms.

## POLICY OPTIONS AND REGIONAL PROGRESS

Policy makers willing to support the emergence of PPP solutions for infrastructure development can act on several dimensions, highlighted in Figure 3.6. Each of these areas is important for the development of a flourishing PPP industry and all of them should be considered together given that they are mutually dependent and reinforcing. Regional progress and key issues related to these dimensions are presented below in greater details.

*A complex mix of inter-related policies*

**FIGURE 3.6**  
**POLICY TOOLKIT TO SUPPORT PPP DEVELOPMENT**



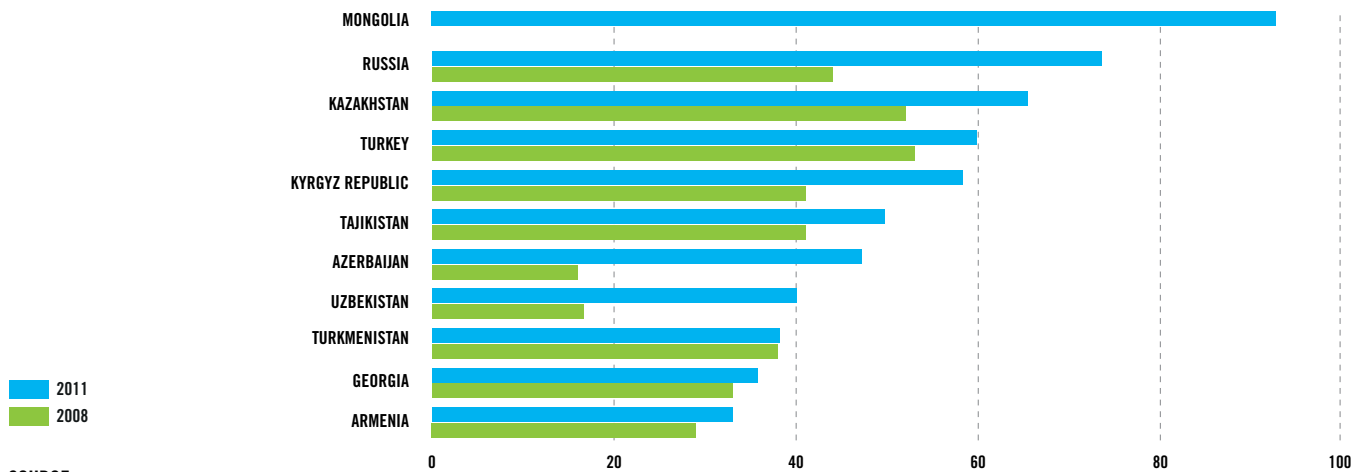
### An adequate legal and regulatory framework

The legal framework applicable to PPP projects has to be clear with regards to which laws apply and what type of sectors or PPP models are eligible for the respective project. Precise identification of authorities empowered to award concessions or to enter into project agreements is also critical. To create such a clear and stable legal environment, some countries have developed dedicated concession laws. In this respect, the UNCITRAL Legislative Guide on Privately Financed Infrastructure projects, adopted in 2000, provide guidance on best international practice.

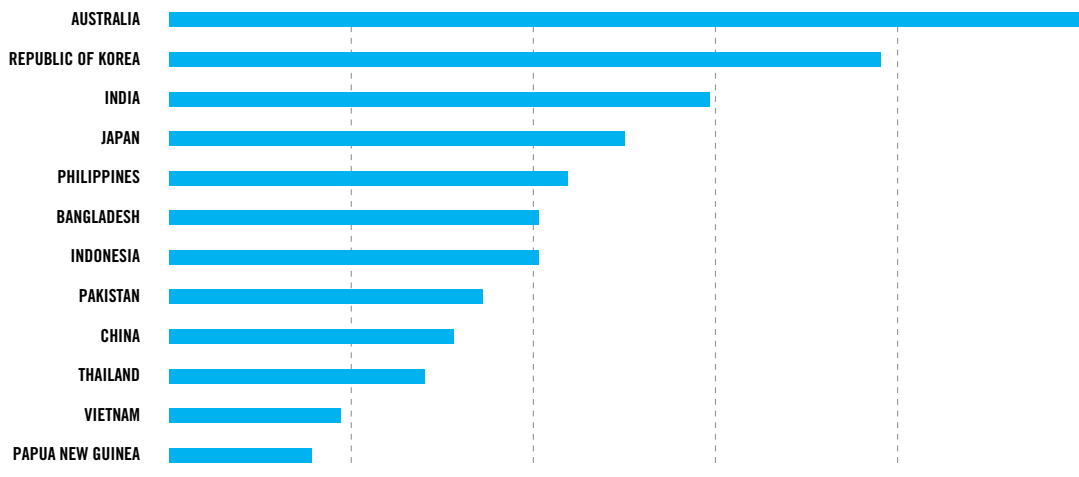
To estimate the progress made in complying with these international best practices, the European Bank for Reconstruction and Development (EBRD) conducts regular assessments in its countries of operation. The re-

sults of their latest study for ESCAP member countries indicate that substantial improvements have been made since 2008 in most countries, thereby testifying strong legislative activities (see Figure 3.7). However, it must be noted that only five of the eleven countries reviewed had a score above 50 per cent, meaning that substantial gaps remain. The Economist Intelligence Unit (EIU) carried out a similar exercise in 2011 for a select number of countries in Asia and the Pacific.<sup>12</sup> Their methodology differs slightly from the EBRD one and thus cross-comparisons are not possible. Nevertheless, the results from the EIU study also confirm that most countries in the region are taking legislative steps to improve their PPP frameworks.

**FIGURE 3.7**  
**PERCENTAGE OF COMPLIANCE OF THE LEGAL AND REGULATORY FRAMEWORK WITH BEST INTERNATIONAL PRACTICES**



**SOURCE:**  
 EBRD 2012  
 Concession/PPP Laws  
 Assessment



**SOURCE:**  
 EIU Infrascope 2011

### A consistent policy orientation

PPP projects typically take several years to be developed and are often politically sensitive. As such, PPPs are vulnerable to government change which could result in a position reversal regarding any public-private partnerships. At the same time, private operators face considerable entry costs when entering a market. For example, private operators have to carry out full due diligence of the legal and fiscal environment and are unlikely to do so if the policy direction of the government are unclear.

Against this backdrop, the development of a national strategy for PPPs could mitigate such political risk by building a wide support and a long-term vision for the sector. For instance, the 2013 Thai legislation on PPPs requires for a 5-year PPP National Strategy, which will serve as a roadmap for the development of PPP projects in Thailand.<sup>13</sup> In order to secure public acceptance for PPPs, it is important to both encourage stakeholder participation early enough in the development process of projects, and to apply a transparent selection process, thereby reassuring the public that national assets are not being sold off.

In addition to mitigating political risks, developing a long-standing strategy, with a series of PPP projects planned, provides an incentive to the private sector to enter the market. Given the institutional costs of developing a comprehensive PPP framework, it is also recommended that these costs are amortized on a minimum number of projects. In this respect, the Australian National Public Private Partnership Policy states that any infrastructure project with a capital cost that exceeds Australian \$50 million (approximately USD \$46 million) will be considered for PPP.

When defining the projects to be implemented through a PPP, attention should however be paid to both the absorption capacity of the private sector (how many private actors are capable of doing the projects), and the transaction costs (some studies mentioned a minimum project size of around \$30 million is needed to absorb these fixed costs).<sup>14</sup> Finally, the use of PPPs for mega-projects requires careful consideration as they may be too complex or too politically sensitive for the private sector to deliver.

### A supportive institutional arrangement

Many governments have established specialized PPP Units in order to develop and supervise PPP projects. These PPP units have generally been successful in playing a ‘catalytic’ role in promoting and implementing private projects. They have been particularly relevant in building internal capacity as they allow the concentration and availability of the required expertise through the accumulation of experience and the possibility of adequate training. India, Bangladesh, the Philippines, Malaysia, Indonesia, Mongolia, Australia and Kazakhstan are a few of the countries that have PPP units or a similar institutional arrangement. However, their function and location in the government differ as does their overall performance.

Building up such internal capacity is particularly relevant to PPPs given the information asymmetry characterized in transport PPP projects, whereby the private sector might have more information than the public sector on critical elements of the project (for ex-

ample, for construction cost estimates). If not handled carefully, such information asymmetry may result in too larger concessions being given to the private sector during the negotiation phase. In this respect, both centralising experience in a single unit and carrying out robust feasibility could help to mitigate the aforementioned risk. Sufficient internal capacities are also necessary to ensure adequate performance monitoring during the life of the project. Indeed, PPPs are not only about procurement but also about long-term relationship management.

Finally, capacity building should not exclusively target the central government as many projects are executed at a sub-national level. According to the EIU study previously mentioned, around 90 per cent of Australia’s PPP are administered at the state level, and many Indian States have their own separate PPP laws and regulations.

### A body of financial support measures

In order to attract private investors, governments often have to provide financial support to these actors to make PPP projects financially viable. Providing such support can be perfectly sensible. The economic return on a transport project might be higher than its financial return, while subsidies might be necessary to limit the future user charges to an affordable level, thereby maintaining access to transport services for a larger portion of the population. Different support mechanisms have been developed over the years and are presented below in turn.

#### Land

Transport infrastructure is highly dependent on the availability of land, the lack of which has been the source of numerous delays for many projects in the past. Therefore, governments can leverage their privileged positions to provide land or grant expropriation rights to the concessionaire (as done in the Republic of Korea, for example). Other solutions have also been tested to accelerate land acquisition for PPP projects. For instance, the Government of Indonesia has been operating Land Funds to partly cover the risk faced by private operators if the land acquisition costs turn out to be significantly higher than projected.<sup>15</sup>



Development rights have also been granted in some cases (predominately in the urban transport sector) whereby private operators commercially develop the land along or above infrastructure in order to raise additional revenues.

#### **Construction subsidy**

Grants such as those provided under Viability Gap Fund (VGF) mechanisms are designed to reduce part of the construction costs through a 'one time' payment. This approach has been one of the factors behind the success of PPPs in India whereby it can contribute up to 40 per cent of capital expenditures (the exact percentage is defined through bidding competition). Such a mechanism also makes it possible to apply standardized toll rates nationally whilst taking into account the specificities of each section of the network. For example, VGF contribution could be larger for a section less frequented. Besides India, other countries such as Indonesia and Bangladesh are also implementing VGF. In the Republic of Korea, construction subsidize can

reach between 25-30 per cent for roads, 30-40 per cent for ports and up to 50 per cent for railways, provided that these subsidies are required to keep user fees at an affordable level.

#### **Government payments**

Revenues for the private operator have to be paid by public authorities for those PPP projects deemed not suitable for user charging schemes. In this respect, two main systems have been used in the transport sector: shadow tolls and availability payments.

'Shadow tolls' are tolls that could have been charged to users yet are paid to the concessionaire by the government. These tolls limit the risk resulting from a possible negative impact that the introduction of user fees has on traffic demand. For example, traffic could be diverted to a free alternative road of less capacity which will be a sub-optimal outcome. At the same time, the private operator keeps an incentive to provide high quality infrastructure in order to attract as many users as possible;

‘Availability payments’ model, whereby the concessionaire receives regular payments from the government based on a service being available, is a more convenient option for the private partner to adopt as the traffic risk stays with the state. The availability of the service can be measured via performance indicators. For example, the number of lanes in acceptable conditions can be measured using the road roughness index that assesses road quality. India is using this model for part of its highway development programs through the so-called ‘Annuity Model’. In India, for the period 2007-12, 26 road projects with a total length of approximately 2000 kilometres were classified under such an implementation arrangement mechanism. This represents 12.6 per cent of the total length of national highways that are implemented through the PPP model, with the remaining majority being toll roads.

### State guarantees

In order to attract private operators to enter such partnerships, Governments often guarantee private operators the mitigation of a certain number of risks. One type of guarantee that can be offered is the ‘Minimum Traffic Revenue Guarantee’ whereby the public partner guarantees revenues for a minimum number of vehicles at an agreed toll level. A similar system was in place in the Republic of Korea until 2009, whereby a significant share of the projected revenue was guaranteed by the State. However, the system was stopped as it was deemed too generous and was putting considerable pressure on the national budget; at the end of 2008, approximately \$1.2 billion had been paid by the government in the form of minimum revenue guarantee subsidies.<sup>16</sup> Therefore, a risk sharing structure was introduced, through which the government ensures that the operational revenues of the PPP allow for a return at least equivalent to the government bond’s rate. On the other hand, a reimbursement mechanism to the government is in place if revenues for the private sector grow beyond a specified threshold in the subsequent years of operation.

Overall, minimum revenue guarantees are important as they can ease private investors’ concerns regarding actual traffic levels. This is particularly relevant as traffic forecasts

tend to be overly optimistic on average for toll roads. A study has estimated that toll road forecasts on average have an optimistic bias of 23 per cent compared to the actual traffic.<sup>17</sup> Such bias is even larger in countries that do not have a strong history of having toll roads (that is, without benchmarking the ‘willingness to pay’ of users). As research did not show the same bias for roads without toll, it could be inferred that overestimation of traffic might be generated by the operator having a desire to win a long term contract and perceiving a probability to renegotiate future charges.

The government might also have to issue guarantees known as ‘default guarantees’ to facilitate private promoters in accessing commercial loans. For instance, the government could decide to carry out the obligations of the PPP company vis-à-vis its lenders upon default, in order to enhance the creditworthiness of the operation, as has been done for some projects in Turkey. Similar financial instruments have also been created to improve the ability of the private party to honour debt service during the initial operating period or



'ramp-up' phase of the project when risk of default is the highest. Indeed, the potential for project distress is at the highest during the early years of the lifecycle, when debts have been drawn and revenue cash flow has just started (that is, there is no longer a liquidity cushion). An example of these instruments is the Loan Guarantee Instrument for Trans-European Transport Network Projects (LGTT) developed by the European Investment Bank and the European Commission. Finally, some countries have also set up dedicated funds to issue guarantees designed to improve the creditworthiness of PPP projects. For example, the 'Indonesia Infrastructure Guarantee Fund (IIGF)' was created in 2010<sup>18</sup> and the 'Infrastructure Credit Guarantee Fund (ICGF)' of the Republic of Korea was established in 1994.

Beyond usage and default guarantees, a series of state guarantees have also been developed to cover other PPP risks. These include guarantees required for protecting private operators against policy risk (e.g. expropriation without compensation), force majeure (for example, natural disasters) or macro-economic risk (for example, currency devaluation when revenues are in local currency).

Overall, all these guarantees might have substantial implications in the long run and should be carefully assessed.<sup>19</sup> As a basic principle, these guarantees should be limited in both time and amount, and should allow for sharing the potential economic upturn. There is also a growing demand and need to ensure that these guarantees are correctly reflected in national accounts.

### Project Development Fund

Developing PPP projects can be costly and may require in-depth studies to be carried out. To encourage the emergence of PPP projects, some countries have (often with the support of donor agencies) set-up dedicated funds that can help finance preparatory activities. Such funds in the ESCAP region include the Project Development and Monitoring Facility (PDMF) in the Philippines, the PPP Technical Assistance Fund in Bangladesh, and the Infrastructure Project Development Facility (IDPF) in Pakistan.

### Right level of support

This section on governmental support measures can be concluded by acknowledging that other mechanisms such as tax incentives have been used to further support private operators in PPP projects. While these supports have contributed to the development of PPP projects, they should not be too generous to avoid scarce public resources from being wasted. Ensuring a fair, competitive and transparent selection process should contribute to mitigate the above risk, as promoting healthy competition remains the most efficient way of bringing costs down.

However, in practice there might be different barriers that prevent such competition. According to KPMG, which conducted a review of these barriers in Australia, the most common issues are: an unknown pipeline of projects that are sporadic in nature; a perceived lack of commitment to PPPs; and the high magnitude of bid costs.<sup>20</sup> Difficulty in raising debt finance, and the lack of private actors having the required capacity and resources for partnering in the initiative could also be factors that lead to low levels of competition. For instance, around 70 per cent of PPP projects in the Republic of Korea were awarded to a sole bidder, with only about 30 per cent involving more than one bidder.<sup>21</sup>

Another more sophisticated mechanism to further confirm the opportunity for a PPP setup is the Value for Money (VfM) analysis. This involves comparing the costs of carrying out a project through a PPP versus the tradi-





Constantin Jurcut

tional government approach. It is worthy to note that these cost comparisons are subject to significant assumptions which make their implementation challenging especially in developing countries. Nevertheless, the exercise remains valuable in helping governments to understand the potential financial viability of a project at an early stage. For example, in the Republic of Korea, the Public and Private Infrastructure Investment Management Center (PIMAC) has been using such analyses.

Overall, promoting high standards of transparency in the selection process, as well as regards the financial implication of the support provided by public authorities, is critical to ensure an adequate level of accountability for the policy makers taking investment decisions.

### A set of agreeable contract provisions

A key challenge in PPP projects is to ensure that the contract between the partners covers all the possible issues expected to arise during the life of the project, which is typically beyond 20 years. Both the variety of risks to be allocated and the uncertainties inherent to a long term horizon make the task of drafting a comprehensive agreement particularly complex.

The following two examples can illustrate the above difficulties. Firstly, future traffic demand can be significantly affected by the transport policy laid out by the government. Indeed, developing a rail connection next to a highway will influence the level of road traffic. Alternatively, introducing a toll regime on a highway could boost demand for rail transport. If the traffic risk is transferred to the private operator, then a compensation mechanism for incorporating the effects of future actions by the government might be required as part of the agreement. Such provisions in a PPP agreement should nevertheless be carefully drafted as they might constrain future governments' actions.

Secondly, the question regarding how the private investments will be remunerated at the end of contract can also be a delicate one and needs to be agreed upon in advance. Otherwise, the private operator will be inclined to divest during the last few years of its contract, as a result of which assets will be returned to the government in a relatively poor condition. Therefore, the termination value or the formula to calculate the asset value needs to be stipulated in the contract.

Several solutions have to be developed in order to facilitate the contracting. The standardization of documents and processes is the most common solution, and has been quoted as one of the key success factors for PPP arrangements in some countries. For instance, the development of model concession agreements and the standardization of bidding documents and technical standards have allowed rapid progress to take place in the road sector in India. The importance of maintaining some flexibility to cope with events difficult to forecast is also critical. For example, a 'traffic trigger' provision in the Brazilian road concession helps avoid the advanced fixing of investment plans because additional capacity works are triggered only once some traffic thresholds are reached.<sup>22</sup> Finally, it is worthy to note that a participatory approach involving early consultation with stakeholders can serve to identify potential issues which can otherwise be underestimated or even overlooked.

Defining a set of agreeable contractual provisions is also a learning process in finding out what type and level of risk the private sector is actually ready to take on. This is why the first PPP projects in a country typically require much more time than subsequent projects. However, the process should become significantly quicker once the parties have reached a common understanding on the standard contract provisions, and once the financial sector is familiarized with the terms of these contracts. Nevertheless, the procurement phase remains a relatively long process even in mature markets. For example, the time from the release of expression of interest (EOI) to the financial close for transport projects is around 18 months in Australia<sup>23</sup>, and can easily take up to several years in less developed countries. According to some studies, PPP projects are actually more prone to delays than are traditional projects in the period prior to project execution.<sup>24</sup> The opposite is observed in the execution period. To avoid extensive delays, some countries such as India have defined a maximum period for reaching the financial close (i.e. the period following the award when the project sponsor has to secure the necessary financing with its lenders/investors). For instance, the mega

project Izmir–Gebse highway in Turkey took three years to reach financial closing for an investment value equal to \$2.8 billion.<sup>25</sup> Overall, financial crises can make financial closing particularly difficult as the risk appetite of traditional lenders such as commercial banks can be substantially reduced resulting in a decline in new projects.

Finally, monitoring the execution of the contract is probably as important as is defining the terms of it. Tracking the agreed performance levels, enforcing penalties foreseen, and resolving the disputes that will inevitably emerge are some of the key challenging tasks carried out throughout the duration of the contract. Again, the public sector should allocate sufficient resources and capacity for these projects in order to maximize the chances of success.

### Creating a conducive economic and investment climate

The overall investment climate plays a significant role in influencing the interest of the private sector in PPP infrastructure projects. Among other factors, a stable macroeconomic situation, a supportive business environment and an efficient legal system are important



conditions to attract private investors. The availability of long-term financial sources such as long-term lenders or bond and equity financial markets are also essential factors that allow private investors to find the required funding for PPP projects.<sup>26</sup> In this respect, some countries have created dedicated infrastructure funds or specialized institutions to boost the provision of long term (mainly local currency) financing for infrastructure projects. Some examples of these funds or institutions are the PT Indonesia Infrastructure Finance (PT IIF); the Bangladesh Infrastructure Finance Fund Limited (BIFFL); and the Infrastructure Development Finance Company Limited (IDFC) in India.<sup>27</sup> Regional initiatives have also emerged, such as the ASEAN Infrastructure Fund which is expected to provide financing for a portion of public-private partnerships (first operations are scheduled to start in the second half of 2013).

The existence of a positive track record of PPP projects is also important to spur private sector interests. Indeed, one failed flagship operation might jeopardize the future of the market. A perception of low hold-up or expropriation risk by the private sector is critical in that respect, as is a fair compensation system for the private operator in the case of early termination by the government.

In conclusion, there are many factors and options that policy makers have to consider when promoting the emergence of PPP solutions for infrastructure development. To support the countries in addressing the challenge of developing PPP structures, ESCAP has been providing for several years technical assistance and policy advice as further detailed in Box 3.1.



Petr Vins

### BOX 3.1 ESCAP LONG-LASTING POLICY AND TECHNICAL SUPPORT TO PPP

#### *Developing knowledge products*

Recognising that strong internal capacity of Governments at the national, sub-national and municipal/local levels is critical to promote, develop, operate and manage PPP projects, the ESCAP secretariat has developed several knowledge products. These products include a 'Guidebook on PPPs in Infrastructure', a 'Primer on PPPs in Infrastructure Development' and a 'Financier's perspective on PPPs'. Based on these products, training courses have also been offered online to provide general knowledge of the financial, contractual and legal aspects of PPPs.

#### *Improving country readiness*

As has been previously highlighted, the use of PPPs in the region is highly concentrated within a few countries, reflecting large difference in the legal, institutional and financial environments of the various ESCAP member countries. Against this background, the ESCAP secretariat has, in partnership with several member countries, developed an analytical tool over the years to help countries in assessing their PPP-readiness. This is the PPP-Readiness Self-Assessment tool which helps identify the key areas that governments need to address in order to involve the private sector more actively in the infrastructure development process. It serves as a basis to develop an action plan.

#### *Raising political awareness*

PPP projects cannot be developed without strong political support and a broad understanding of what can or cannot be achieved via the PPP approach. The ESCAP secretariat has purposefully supported countries in adopting this approach through the organization of high-level Expert Group Meetings and Ministerial Conferences on PPP for Infrastructure Development in Seoul (2007), Jakarta (2010) and Tehran (2012).

## BUILDING INTRA-ASIAN PARTNERSHIP

While the previous section presented how the private sector could contribute to finance more transport infrastructure, this section will focus on multi-country cooperation as it has been identified as a key source for supporting regional projects.

Focusing on regional transport infrastructure is particularly relevant as regional networks have the potential to foster economic integration and generate additional growth. However, regional transport projects are by nature more complex than national ones, with the former necessitating much higher coordination efforts and the value generated depending extensively on all parties fulfilling their part of the works. The costs and impacts of regional projects may also be unequally distributed (or at least perceived so) among the participants, thereby resulting in further complexities and differing levels of commitment. In addition, institutional obstacles such as inefficient cross-border agreements can reduce the benefits deriving from these projects. For all of these reasons, regional transport projects often receive lower priority compared to national ones, which have a lower risk profile and a shorter gestation time.



Teijo Hakata

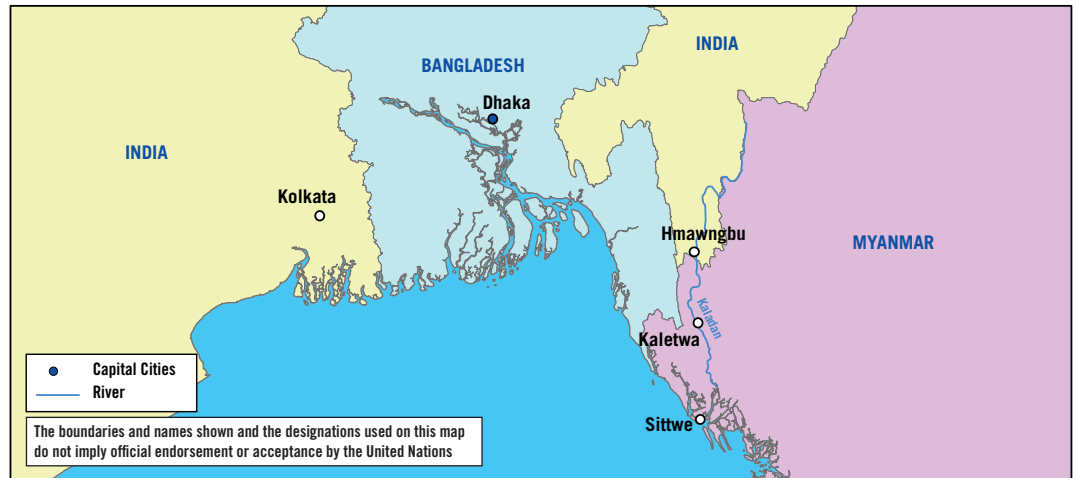
Financial constraints may also prevent some countries from carrying out projects that could potentially benefit the entire neighbouring region, as regional infrastructure performance is only as good as its weakest link.

With this in mind, some countries in the ESCAP region have provided financial assistance to other member countries to support them in developing their part of regional transport infrastructure. For instance, in addition to the DAC<sup>28</sup> donors such as Australia, Japan, New Zealand and the Republic of Korea, countries such as China, India, the Islamic Republic of Iran, Malaysia, the Russian Federation and Thailand have provided finance to low income countries of Asia including Afghanistan, Bangladesh, Bhutan, Cambodia, the Lao People's Democratic Republic, Mongolia, Myanmar and Nepal. The emerging trend of 'Intra-Asian' regional investments in infrastructure is outlined below, followed by a number of other potential vehicles for regional cooperation in infrastructure development.

### EMERGING TREND

In recent years, Intra-Asian collaboration has emerged as a new and growing source of transport infrastructure financing. For instance, the Russian Federation, India and China contributed \$3.6 billion of 'ODA like' funding in 2011, a sharp increase on recent years (68 per cent increase for China and an 86 per cent increase for India against 2007 contributions)<sup>29</sup>. Though, it is known that only a part of these resources are allocated to Asia and to transport infrastructure in particular, this growing trend offers new perspectives on the nature of regional cooperation in transport infrastructure in Asia and the Pacific. The following paragraphs present examples of selected transport projects benefiting from Intra-Asian regional cooperation. Most of these projects would most likely not have been undertaken without regional financial collaboration.

*Existing  
intra-Asian  
cooperation  
is mainly  
bilateral*

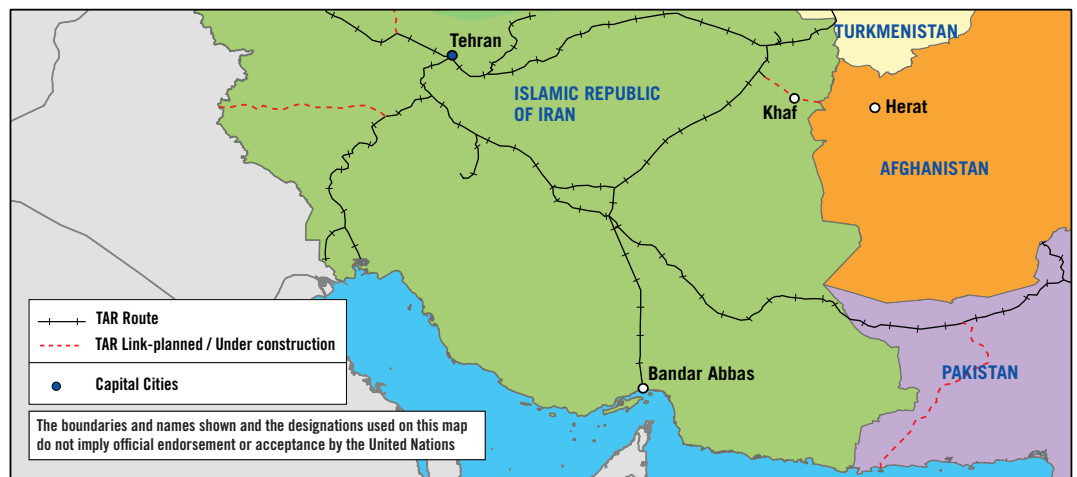


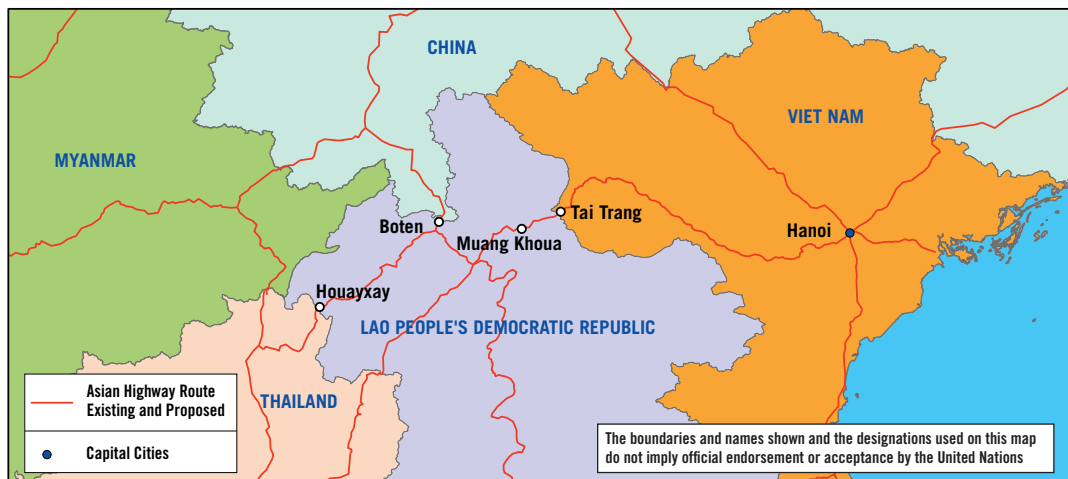
### India – Myanmar: Kaladan Multi-Modal Transit Transport Project

The Kaladan Multi-Modal Transit Transport Facility envisages connectivity from the Indian port of Kolkata to Sittwe Port in Myanmar, subsequent inland water transport on the Kaladan river up to Kaletwa and finally road transport to the landlocked area of Mizoram in north-eastern India (after crossing the border at Hmawngbu). Funded by India, the project is expected to improve connectivity between India and Myanmar, as well as facilitate access to the sea for the landlocked states of Northeast India. The project is expected to be completed by 2014-2015.<sup>30</sup>

### Iran (Islamic Republic of) – Afghanistan: Khaf-Herat Railway Project

The Government of the Islamic Republic of Iran plans to invest \$75 million in the construction of the Afghanistan part of Khaf-Herat railway line, which will connect the country to the eastern part of the Islamic Republic of Iran. The first two sections in the Islamic Republic of Iran have already been completed. This regional rail project will enhance trade ties between the two countries.<sup>31</sup>





## Thailand, China and Viet Nam with Lao People's Democratic Republic

### *GMS Northern Economic Corridor Project:*

Under this project, 228 km of the Asian Highway (AH3) in two provinces of north-western Lao People's Democratic Republic, from the Thai border town of Houayxai to the Chinese border town of Boten, was upgraded to an all-weather road. This improvement was partly financed with assistance from China (\$39 million) and Thailand (\$53 million). The road establishes a direct link between Thailand and China, thereby promoting transport and trade. The project was completed in June 2009.<sup>32</sup>

**National Highway 2E project:** The highway, linking Khoa district (Muang Khua) to the Tay Trang border gate with Viet Nam (68.2 km) was inaugurated in February 2013. The project should further boost exchanges between the two countries. The total investment for the road amounted to \$43 million. This was the second project financed by the

Vietnamese government within the borders of Lao People's Democratic Republic.<sup>33</sup> This road should be soon part of the Asian Highway network (AH13) as the related amendment to include this road section has already been proposed.

## China - Kyrgyzstan: Rehabilitation of Bishkek–Torugart Road and Osh-Sarytash-Irkeshtam

The AH61 road from Bishkek–Naryn–Torugart (539 km) links China and the Republic of Kazakhstan through the territory of Kyrgyzstan and is one of the six priority transport corridors of the Central Asia Regional Economic Cooperation (CAREC) program of the Asian Development Bank. The Export-Import Bank of China provided the major portion of the financing, with \$200 million lent for the implementation period 2010–2015. Another project in Kyrgyzstan which has benefited from Chinese assistance in rehabilitation efforts is the AH65 road from Osh–Sarytash–Irkeshtam (258 km), which was completed in 2012.<sup>34</sup>





### Malaysia – Cambodia: Railway Rehabilitation Project

In addition to other donors such as Australia, the Government of Malaysia provided a \$2.8 million contribution (grant-in-kind) to support the rehabilitation of rail infrastructure in Cambodia, which forms an integrated part of the Trans-Asian Railway network. The project aims at restoring the existing railway infrastructure through track rehabilitation and redevelopment. Train services started in December 2012 on the southern line of the rehabilitated network between Phnom Penh and Sihanoukville.<sup>35</sup>

While the list of projects presented above give an insight into what is possible through bilateral cooperation, the scale of the region's infrastructure needs raises the question of whether additional mechanisms have to be introduced to meet these needs. The following section introduces some alternatives approaches that could be considered for enhancing regional cooperation in the field of infrastructure financing, particularly by using existing resources in a more optimal manner or to leverage additional funding which otherwise would not be available.

## FUTURE AVENUES

Although the region encompasses various institutional mechanisms for coordinating the development of regional transport infrastructure, such as the Working Group on the Asian Highway, very few are coupled with dedicated financial mechanisms that support the implementation of the projects identified. A number of existing as well as potential types of regional funding mechanisms are presented below.

### Regional infrastructure fund

In 2010, ASEAN member States and the ADB set up the ASEAN Infrastructure Fund, with an initial equity base of \$485 million, of which \$335 million is provided by ASEAN members and the remaining \$150 million from the ADB. One of the goals of the Fund is to support the implementation of the Master Plan on ASEAN Connectivity by lending \$4 billion to ASEAN members through to 2020. While the Fund itself will function as a limited liability company, the ADB will administer the Fund, which is tentatively expected to finance approximately six infrastructure projects each year. In June 2013, it was announced that lending operations would begin in the second half of 2013, with a pipeline of around \$1 billion in projects for the next three years. However, the ASEAN Infrastructure Fund may still not meet the needs of the poorest countries of the region, unless it can be combined with other sources of concessional lending.

A similar fund also exists in the South Asian Association for Regional Cooperation (SAARC), although its size is more limited.

*Could regional mechanisms bring some added value?*

Such infrastructure funds could serve in the future as a vehicle to mobilize resources from institutional investors such as pension funds, sovereign wealth funds or foreign exchange reserves, playing an intermediary role between investors and project sponsors.

### Asian multi-donor platform

Another approach for enhancing regional cooperation is to develop a multi-donor platform designed to collect grants from different donors, and to subsequently allocate them to different implementing partners (i.e. financial institutions). As such, the grants provided by the multi-donor platform will complement the loans provided by participating international financial institutions. This approach has been used by the European Union (EU) and its member States whereby EU grants are used to leverage loans from different European national and multilateral public financial institutions. Two such mechanisms are relevant to the Asian region – the Investment Facility for Central Asia (IFCA) and the Asian Investment Facility (AIF) – both endowed with significant grants funds (the IFCA alone had around \$80 million for the period 2010-2013). Transport is however currently not eligible under these frameworks, though this might be change in the future.

Such multi-donor mechanisms could be particularly relevant for the poorest countries in the region as grants could enhance the financial viability of the regional transport projects under consideration. By gathering all major actors active in infrastructure financing around a common financial mechanism, such a regional approach might have additional merits compared to traditional bilateral cooperation such as:

- supporting identification and prioritization of regional projects;
- providing a broader choice for channelling donor resources, as the platform will be open to various financial institutions;
- creating more transparency about both the funds provided and the strings attached, while improving exchange of information regarding the various regional projects developed;

- reducing administrative costs compared to an ad-hoc / case-by-case approach;
- facilitating collaboration among participating institutions, including at the project level (e.g. harmonization of procedures);
- offering a framework for developing new ideas and concepts to support the financing of future infrastructure projects.

### Regional project preparatory facility

Another area where regional cooperation could be enhanced is in the creation of a facility to help countries prepare projects. Most countries lack bankable projects simply because they don't have the legal, project financing and technical expertise to design and formulate projects which are attractive to potential investors. To overcome this issue, some countries, such as Indonesia, have established dedicated 'Project Development Facilities' within their governments' institutional frameworks.

The preparation of regional transport projects are even more costly and time consuming due to the lack of data, such as cross-border traffic flows. Some analysts have called for the creation of an Asian Infrastructure Financing Fund (AIFF) to help governments prepare bankable regional projects.

While the three different approaches presented above offer new horizons for financing regional infrastructure, these approaches if pursued should capitalize on existing initiatives such as the ones supported by ESCAP described in Box 3.2.

#### BOX 3.2

#### ESCAP SUPPORT TO REGIONAL INFRASTRUCTURE FINANCING

The ESCAP secretariat has organized various events aimed at facilitating access to finance for key regional infrastructure projects. For instance, the first Asian Highway Investment Forum was organized in 2007, and a second one is planned for 2013. Such meetings provide an opportunity for participating countries, international financial institutions and the private sector to discuss investment priorities and prospects, as well as different approaches to financing projects. Furthermore, they support exchange of experiences related to the financing, development and operation of major highways. This was evident from an Expert Group Meeting that ESCAP organized in 2009 on 'Financing for Transport Infrastructure', which encouraged ESCAP member States to give high priority to projects that improve cross-border connectivity and help to 'operationalize' the Asian Highway and Trans-Asian Railway networks.

## END NOTES

<sup>1</sup> 1.5 per cent is the average of total outlays in transport for countries for which data were available (source IMF – Government Finance Statistics online database). For 2010, such data were available for 13 countries in the ESCAP region.

<sup>2</sup> Overall, the approach followed is very similar to the one used in ESCAP (2006). More recent average cost estimates were however considered notably those coming from Dulac (2013).

<sup>3</sup> Only the Democratic People's Republic of Korea is not a member of these institutions.

<sup>4</sup> The analysis focuses on approved projects for the period such that closed/terminated and proposed projects have been excluded from the analysis. Please refer to the 'Statistical Annexes' in the respective ADB Annual Report for this information ( HYPERLINK "<http://www.adb.org/documents/series/adb-annual-reports>" <http://www.adb.org/documents/series/adb-annual-reports>) and the 'Summaries of Operations Approved' in the respective WB Annual Report.

<sup>5</sup> ADB (2013a)

<sup>6</sup> Source: OECD - <http://www.oecd.org/dac/stats/statistics-on-resource-flow-to-developing-countries.htm>

<sup>7</sup> According to World Bank PPIAF database, close to 90% of transport PPP projects (value terms) have followed these types of models in the last decade in developing Asia. The remaining proportion is mainly 'divesture' which is actually closer to privatization than to classical PPP models.

<sup>8</sup> Mott-Mac Donald (2002)

<sup>9</sup> Average total cost based on PPIAF Database (only developing countries)

<sup>10</sup> For high income countries, only projects for the Republic of Korea and Australia were included in the analysis, as some data were readily available for these countries. However, PPP investments in transport for other Asia-Pacific high income countries are deemed relatively limited. For example, the Japanese market is characterised by smaller projects primarily across social infrastructure (JETRO (2010)).

<sup>11</sup> Haldea (2013)

<sup>12</sup> EIU (2011)

<sup>13</sup> Source : <http://www.nortonrose.com/knowledge/publications/75278/ppp-back-on-the-agenda-in-thailand> accessed on 6 September 2013

<sup>14</sup> EIB (2009)

<sup>15</sup> "The land capping fund is available for toll road investors and provides private investors with downside risk protection should land acquisition costs significantly exceed initial estimates. The government will cover any changes in land acquisition costs above 110 % from the agreed price in the concession agreement or 2% of investment cost, whichever is higher" source Oxford Business Group – The Report Indonesia 2012.

<sup>16</sup> Kim et al. (2011)

<sup>17</sup> Bain (2009)

<sup>18</sup> For further details : [http://www.pwc.com/id/en/publications/assets/thereport\\_indonesia2012\\_obg.pdf](http://www.pwc.com/id/en/publications/assets/thereport_indonesia2012_obg.pdf) accessed on 6 September 2013

<sup>19</sup> Further information on State Guarantees is available in EPEC (2011)

<sup>20</sup> 'Bidding for PPP projects is expensive: typically \$2.5 million at risk for projects with a capital value of \$250 – 300 million, rising to \$5 - 6 million for a \$1 billion hospital and \$30 million or more for a large \$2 billion+ economic infrastructure project.' KPMG (2010)

<sup>21</sup> Kim et al. (2011)

<sup>22</sup> IFC (2012)

<sup>23</sup> KPMG (2010)

<sup>24</sup> Duffield (2008)

<sup>25</sup> <http://infrappworld.com/2013/03/megaproject-2-astaldi-and-turkish-partners-close-financing-for-2-8-billion-izmir-gebse-highway.html> accessed on 6 September 2013

<sup>26</sup> Some specialised private equity funds have emerged to provide the equity part of infrastructure projects while large multinationals usually finance their equity investment themselves.

<sup>27</sup> Most transport project earnings are denominated in local currency. The availability of long term financing options in local currency is important to mitigate maturity and currency mismatch risk.

<sup>28</sup> DAC refers to the OECD Development Assistance Committee (DAC) which has grouped the world's main donors.

<sup>29</sup> Source: OECD - <http://www.oecd.org/dac/stats/statistics-on-resource-flow-to-developing-countries.htm> accessed on 6 September 2013

<sup>30</sup> Source: Ministry of Development of North Eastern Region ( <http://www.mdoner.gov.in>) accessed on 6 September 2013

<sup>31</sup> Source UIC - <http://rameuic.com> accessed on 10 June 2013

<sup>32</sup> Source: ADB <http://www.adb.org/sites/default/files/PVR-202.pdf> accessed on 6 September 2013

<sup>33</sup> Source: Ministry of Transport: <http://www.mt.gov.vn/eDefault.aspx?tabid=10&catid=149&articleid=15904> accessed on 6 September 2013

<sup>34</sup> Source: Ministry of Transport and Communications of Kyrgyzstan / <http://piumotc.kg/en/projects/> accessed on 18 August 2013

<sup>35</sup> Source: ADB (<http://www.adb.org/projects/37269-013/fast-facts>) and Toll Royal Railway <http://www.tollroyal-railway.com/>) accessed on 17 August 2013