

## *Chapter 7*

# Infrastructure connectivity in Lao PDR

*This chapter examines the current context of infrastructure development in the Lao People's Democratic Republic (Lao PDR). It reviews connectivity challenges and recent reforms to boost infrastructure investment, including private participation in infrastructure, and the remaining obstacles to improving the legal and institutional framework for private investment in infrastructure.*

## Summary

Lao PDR has grown rapidly in the past decade at average real GDP growth rates above 7%, achieving significant economic and social progress. Growth has been propelled mostly by the country's large natural resource endowment and its close proximity to some of Asia's fastest growing economies (see Chapter 1 on trends in foreign investment and trade). The Eighth National Socio-Economic Development Plan (2016-20) strives to continue this growth path with the goal of graduating to a middle-income economy by 2020. It identifies the need to strengthen economic integration within the region and broader economic diversification, notably through developing the agro-processing and tourism industry, as key strategies, and recognises the importance of infrastructure development for supporting the transition from a land-locked to a land-linked economy in order to achieve its development objectives.

While Lao PDR has enhanced its connectivity to its main trading partners through both transport and trade facilitation improvements, investments in upgrading transport networks are necessary to keep pace with rapidly increasing demand. From 2000 to 2013, vehicle registrations, for instance, increased by 500% in the three main provinces (World Bank, 2013). Given Lao PDR's vulnerability to climate change and natural disasters (see Chapter 8 on the investment framework for green growth), a large upgrading of the existing network is also needed. As of 2012, over 40% of villages lacked access to all-weather roads (World Bank, 2013).

Meeting future demand for infrastructure will require relatively large investments estimated at USD 11.4 billion in 2010-20, besides potential additional investments needed for cross-border infrastructure projects. This represents 13.6% of Lao PDR's estimated 2010-20 GDP, which puts investment needs at levels much above those estimated for neighbouring countries (Battacharyay, 2010) and largely above the resources currently committed to infrastructure development by the government and donor community. Mobilising resources for infrastructure needs is, therefore, a major challenge, but the payout from improved infrastructure connectivity can be large.

Infrastructure connectivity is crucial for Lao PDR's economic development. Despite being relatively competitive compared to other land-locked countries, the relatively high cost of accessing international gateways is a handicap for developing an export-base in manufacturing and for local firms to integrate into global value chains. Ongoing OECD research shows that global value chains are much more sensitive to local infrastructure quality than overall trade. Poor infrastructure systems are a major

determinant of overall logistics costs, which in turn are among the primary causes of trade costs. Worldwide, firms' locational decisions have become more influenced by their need and ability to ensure predictable and reliable supply-chains, capable of delivering effectively on each stage of the chain (Taglioni and Winkler, 2014). The costs of delays, for instance, can be substantial for certain product categories (a tariff equivalent of 1% or more) (Hummels, 2007). In some of Lao PDR's neighbours, Portugal-Perez and Wilson (2010) estimate that improving physical infrastructure to the level of Malaysia could boost exports by almost 25-30%, which would be equivalent to 15-20% reduction in the value of tariffs on goods.

Infrastructure development is also crucial to link isolated rural areas to markets and strengthen the development of the tourism sector in Lao PDR. The Greater Mekong Subregion (GMS) has a large tourism potential due to its historical cultural sites and natural assets. International tourism is growing quickly in the region. In Lao PDR, annual tourist arrivals have grown over 20% in recent years, but represent only a minor share of tourists arriving in the region as a whole (less than 10%) (ADB, 2014). Tourism activity is highly concentrated in Vientiane Capital, which accounts for more than 40% of international arrivals and roughly 50% of hospitality investments. A key impediment to more inclusive and geographically dispersed tourism growth has been the insufficient last-mile transport infrastructure in secondary destinations (ADB, 2014). Improving access to tourist sites outside the capital is therefore crucial to bring development opportunities to other regions and thereby to reduce inequalities.

In the past, investment in infrastructure has been largely undertaken by the government, with strong support from multilateral and bilateral donors, whose assistance has often outpaced the level of government resources allocated to infrastructure sectors. Private investment in infrastructure has been limited to a few projects, mostly in the power sector, but the government is willing to encourage greater private sector participation in infrastructure. It has rightly identified the need to strengthen the legal and institutional framework as the starting point for this to happen.

With the support from the Asian Development Bank, the Ministry of Planning and Investment seeks to implement a new *Public-Private Partnership (PPP) Decree* consistent with international practice and compliant with Lao legislation and to build the necessary institutional capacity to deliver. Establishing such a building block is necessary. Lao PDR has no proper PPP legal and institutional framework in place yet. The draft framework brings some important regulatory and institutional mechanisms to improve infrastructure delivery capacity, such as the establishment of a PPP unit and a project development facility, but many

challenges have still not been addressed. A number of issues would need to be further clarified by regulations and guiding documents.

Private investment will not solve any funding issue impeding further investments in infrastructure, but it can be an important ally in promoting a more efficient use of available resources when undertaken in a propitious and competitive environment. For this, the selection of infrastructure projects and the choice of delivery mode need to be grounded in a robust value-for-money analysis not biased by any fiscal motivation. It is the role of the government's new PPP framework to ensure that infrastructure investments are carried out in the most efficient manner. For this, further efforts are needed to improve the planning and assessment of infrastructure projects so as to ensure value for money. Establishing sound PPP policies is a step forward, but many other challenges will continue to exert pressure in this regard, including the underdeveloped financial sector. Overcoming these challenges will take some time. In the near term, multilateral and bilateral donors will continue to play a critical role in facilitating investments in infrastructure, be it through PPPs or traditional delivery.

*Policy recommendations:*

- Strengthen the capacity and co-ordination across the government for planning and assessing infrastructure priorities so as to ensure infrastructure strategies are well integrated with overall industrial strategies (*e.g.* inefficient last-mile transport infrastructure to secondary destinations may have hindered greater tourism development and diversification);
- Consider establishing a framework for preparing public investment and PPP proposals to facilitate project comparison and prioritisation according to projects' socio-economic importance, environmental sustainability and financial feasibility. Make sure infrastructure project selection and prioritisation incorporates budget constraints and follows structured project appraisal procedures and cost-benefit analysis;
- Ensure that the PPP policy is grounded on efficiency rather than fiscal motives. Continue to devote enough public resources to infrastructure investment and build capacity to carefully assess and allocate risks between parties in PPPs so as to secure value for money;
- Ensure a transparent and competitive tendering environment during the selection stage of PPP investors so that they are based upon

value for money expectations. Direct appointment should be reserved for exceptional cases;

- Clarify some of the draft language in the PPP decree, including on roles and responsibilities among institutions, specific procedures for smaller projects, land clearance and compensation issues, and rules and circumstances under which renegotiations are permitted;
- Ensure implementation regulations and guidance documents are clearly drafted and that there is no overlap or inconsistency between the PPP decree and the *Law on Investment Promotion*.

## Taking stock of infrastructure connectivity challenges in Lao PDR

### ***Limited ICT infrastructure and use is likely to contribute to increased trade costs***

Despite significant progress over time, Lao PDR still faces some important infrastructure shortcomings as reflected in a number of infrastructure stock indicators and perception assessments (Table 7.1). It has among the lowest information and communication technology (ICT) availability and penetration in Southeast Asia, with only 67 people having access to mobile telephone out of 100 people, compared to levels close to 100 and above in China and other Southeast Asian countries, respectively. Internet penetration is also among the lowest in the region, with only 15 internet users out of 100 people and less than one person in 100 having access to fixed broadband internet subscriptions. Among other effects, improved access and use of ICT infrastructure can greatly reduce the cost of exchanging often complex and sizeable volumes of information, data and documents associated with international trade transactions. In general, ICT availability and use is estimated to contribute to about 6-7% of a country's average comprehensive trade costs (UNESCAP, 2012). In Lao PDR, the relatively poor ICT penetration is likely to contribute to relatively higher trade costs and may hinder industrial development.

### ***Access to electricity has greatly improved in the past decade but is still limited compared to elsewhere in the region***

In 2005, only 50% of the households had access to electricity (ADB, 2013), compared to nearly 70% as of 2012. Access to non-solid fuels for use in common day-to-day activities, such as lighting, cooking and heating, is still reserved to only a small percentage of the population. The lack of access to electricity is particularly acute in rural areas, with severe consequences to public health and the environment, as households end up

relying on poor substitutes for electricity, such as firewood and charcoal. Expanding electrification remains a government priority to reduce poverty and the government's goal is to have 90% of all households with access to grid electricity by 2020 (ADB, 2013).

Meeting the target will require substantial investments in generation and transmission capacity (ADB, 2013). The power grid is fragmented across three regional grids, which is inadequate to support planned expansion of hydropower generation and its connection to the GMS power market. It also fails to properly support domestic demand and, as a result, Lao PDR has had to import electricity from neighbouring countries despite being an exporter of electricity. In 2010, imports reached 45% of total electricity demand (World Bank, 2012). Reaching the more remote rural areas as per the government plans is also relatively costly. A plausible alternative that the government has increasingly encouraged is the development of off-grid solutions, notably of renewable technologies (see Chapter 8).

Off-grid mini hydropower and wind and solar power plants could contribute to extend access to electricity in rural areas and help to reduce the current use of biomass. Stand-alone, local mini-grid systems can be integrated later to the national grid once it reaches the area. Such measures can significantly improve the lives of rural populations, but requires implementing appropriate policies for their development (*e.g.*, dedicated institutional structures, clear power purchase regulations for small power producers, capacity-building measures for proper operation and management of systems, removal of ineffective subsidised programmes undermining the development of market-based solutions, promotion of energy efficient technologies and microfinance services).

Attracting investment in the domestic power sector will require addressing the historically low level of electricity prices, which undermine the industry's financial sustainability and capacity to meet investment requirements. Electricity prices remain among the lowest in the region (Table 7.2) and exert considerable financial pressure on the vertically-integrated, state-owned utility company, Electricité du Laos which holds the monopoly over transmission and distribution to all electricity customers served by the national grid. It is also the owner of EDL-Gen, responsible for EDL's generation function since 2010, and holds equity interests in four export-oriented hydropower plants in operation and a number of other independent power projects under construction. These have dedicated transmission lines connecting them to designated export markets. Low electricity tariffs partly explain why most independent power producers (IPPs) export power to neighbouring markets (ADB, 2013).

Table 7.1. Selected infrastructure indicators across ASEAN countries and China

	Electricity				ICT			Transport			
	Access to electricity (% of population)	Electric power transmission and distribution losses (% of output)	Access to non-solid fuel (% of population)	Quality of electricity supply, 1-7 (best) <sup>1</sup>	Mobile cellular subscriptions (per 100 people)	Internet users (per 100 people)	Fixed broadband subscriptions (per 100 people)	Ratio of paved roads to total road length (per cent)	Asian highway, Primary and Class III and below as a share of total Asian highway <sup>2</sup> (per cent)	Quality of roads, 1-7 (best), WEF <sup>1</sup>	Quality of air transport infrastructure, 1-7 (best), WEF <sup>1</sup>
	2012	2012	2012	2015	2014	2014	2013-14	2012-14	2012	2015	2015
Brunei	76	6.2	100	-	110.1	68.8	7.1	93	-	-	-
China	100	5.8	54.9	5.34	92.3	49.3	13.6	-	5.4	4.69	4.79
Cambodia	31	18.3	11.4	3.11	155.1	9	0.2	10.9	68.8	3.34	3.68
Indonesia	96	9.1	59.3	4.13	126.2	17.1	1.2	56.7	0	3.72	4.36
Lao PDR	70	..	2.4	4.71	67	14.3	0.2	16	87.5	3.62	3.8
Malaysia	100	6.2	100	5.78	148.8	67.5	10.1	79	0	5.69	5.74
Myanmar	52	25.3	7.3	2.72	49.5	2.1	0.2	51.6	84.8	2.33	2.62
Philippines	88	11.5	45.9	4.03	111.2	39.7	23.2	86	98.7	3.3	3.69
Singapore	100	1.6	100	6.74	158.1	82	27.8	100	0	6.21	6.8
Thailand	100	5.7	75.9	5.22	144.4	34.9	8.2	83.2	3.1	4.38	5.11
Viet Nam	99	9.8	51.1	4.11	147.1	48.3	6.5	66.3	16	3.34	4.17

Notes: (1) The Asian Highway network consists of highway routes of international importance within Asia, including those crossing more than one sub-region; those within sub-regions that connect neighbouring sub-regions; and those located within member States that provide access to: (a) capital cities; (b) main industrial and agricultural centres; (c) major air, sea and river ports; (d) major container terminals and depots; and (e) major tourist attractions. The total AH network is divided into five major classes (primary, I, II, III, below III) that conform to road design standards. Primary class refers to access-controlled highways used exclusively by automobiles, with access at grade-separated interchanges only. Mopeds, bicycles and pedestrians are not allowed to enter the access-controlled highway in order to ensure traffic safety and the high running speed of automobiles. Class I refers to asphalt, cement or concrete roads with four or more lanes. Class II refers to double bituminous treated roads with two lanes. Class III is also regarded as the minimum desirable standard. Roads classified below class III are road sections below the minimum desirable standard. Data is available at the UNESCAP online statistical database; (2) The WEF's scale is from 1 (extremely underdeveloped) to 7 (well developed and efficient by international standards).

Source: World Bank World Development Indicators database, UNESCAP online statistical database, ASEAN-Japan Transport Statistics database and WEF (2015).

Table 7.2. Electricity tariffs in Lao PDR and ASEAN, USD¢/kWh, 2014

	Residential		Commercial		Industrial	
	Low	High	Low	High	Low	High
Brunei Darussalam	3.82	19.11	3.82	15.29	3.82	3.82
Cambodia	8.54	15.85	11.71	15.85	11.71	14.63
Indonesia	4.6	14.74	5.93	12.19	5.38	10.14
Lao PDR	3.34	9.59	8.8	10.36	6.23	7.34
Malaysia	7.26	11.46	9.67	11.1	7.83	10.88
Myanmar	3.09	3.09	6.17	6.17	6.17	6.17
Philippines	21.1	24.83	19.93	22.94	18.15	19.37
Singapore	19.76	19.76	10.95	18.05	10.95	18.05
Thailand	5.98	9.9	5.55	5.75	8.67	9.43
Viet Nam	2.91	9.17	4.38	15.49	2.3	8.32

Source: JICA (2014).

***Transport connectivity has improved but the quality of the network remains below regional standards and acts as a barrier for further economic development and diversification***

Transport connectivity has also improved considerably in the past decade, but the quality of the network remains below regional standards. The road network consisted of roughly 51 500 kilometres in 2014, an increase from 39 500 in 2010 (Government of Lao PDR, 2015), serves the vast majority of passenger and freight transport in the country. In 2011, road transport was reported to account for 98% of passenger-kilometre travels and 86% of weight-kilometre of freight moved in the country (ADB, 2011). Inland water transport remains limited and rail infrastructure is almost inexistent. The narrow coverage and seasonal flow of waterways hinders the development of inland transport alternatives, and the small population and low population density constrain the role of railways as an efficient alternative to domestic transport. The development of a GMS railway network in Lao PDR may eventually be feasible depending on the demand for commodity movements from other GMS countries (ADB, 2011). The government has identified several potential railway projects linking the country to Thailand and China, with some of them already moving to the construction bidding stage (Government of Lao PDR, 2015).

The poor quality of the road network is, therefore, an important shortcoming for economic development. Only about 16% of the existing



road network is paved, and over 87% of the Asian Highway route network within Lao PDR – which provides the backbone national road links to neighbouring countries and within Lao PDR – are classified as Class III or below (*i.e.* the minimum desirable standard or below). Moreover, about 40% of the villages lack access to all-weather roads, which is a significant challenge given the country’s relatively high vulnerability to natural disasters (World Bank, 2011). Most of the public investment in the transport sector in the past has been directed to extending the network. Only limited funding has been for upgrading and maintaining the existing network. While the government recognises the importance of maintenance to ensure the sustainability of the existing road network, the revenues of the Road Maintenance Fund, established in 2001 for such purposes, fall short of annual maintenance needs. In the recent past, it has covered only about 40% of annual needs (World Bank, 2011).

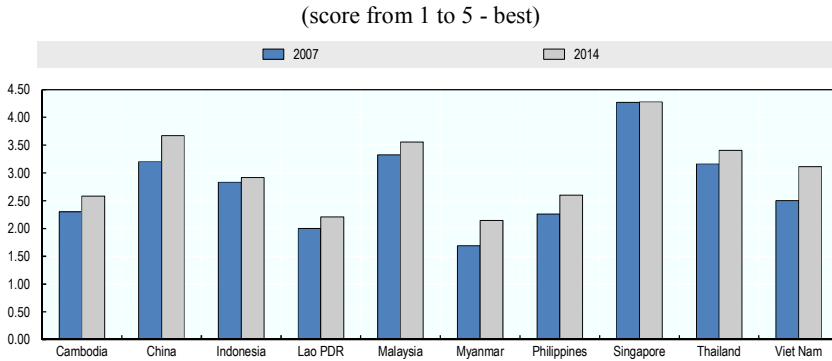
These shortcomings in the quality of Lao PDR’s connectivity infrastructure, as observed in stock indicators in Table 7.1, are also reflected in the country’s relatively weak performance in the World Bank’s 2014 *Logistics Performance Index* (LPI) compared to regional peers (Figure 7.1). Despite the progress achieved since the first LPI survey of Lao PDR in 2007, its performance under the indicator of “quality of trade and infrastructure” (*e.g.* ports, roads, airports, information technology) remains, nevertheless, among the lowest in the region. While the low perception of logistic firms and practitioners responding to the survey may likely reflect the country’s land-locked characteristics to some extent, Lao PDR still ranks 128<sup>th</sup> among 160 countries covered in the survey under this component. All respondents rated the quality of Lao PDR’s different connectivity infrastructure sectors as low or very low. The World Economic Forum’s (2016) *Global Competitiveness Report* also attests to the low quality perception by firms of Lao PDR’s infrastructure systems in comparison to some regional competitors (Table 7.1).

***Shortcomings in the availability and quality of infrastructure networks compound the costs of being land-locked and act as a further deterrent for Lao PDR’s trade and investment integration***

The relatively limited availability and quality of the existing infrastructure network has important consequences for trade and investment connectivity within the region and with the rest of the world. Trade and investment-related infrastructure are important drivers of non-tariff trade costs (Figure 7.2). In a number of ASEAN countries, transport-related costs are among the main factors contributing to higher trade costs. Lao PDR is particularly affected as a land-locked country dependent on the access and quality of international gateways of its neighbouring countries. For instance,

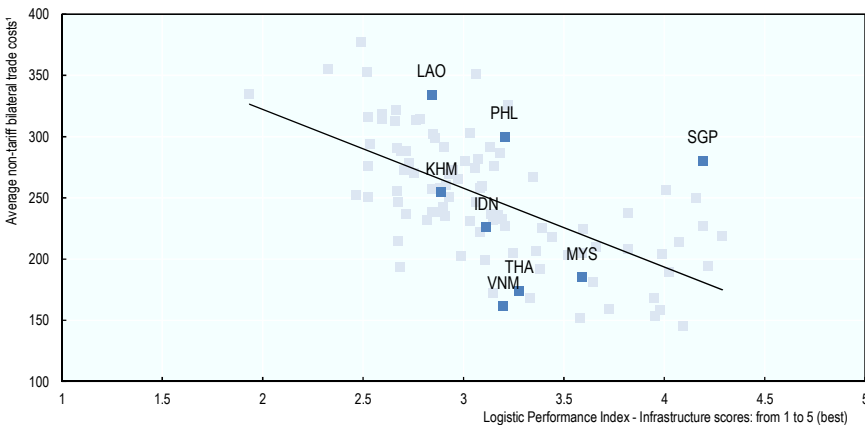
the distance from Japan to Lao PDR is not that different from Japan to Thailand, and yet bilateral trade costs with Japan are 3.3 times that of Thailand with Japan.

Figure 7.1. **The World Bank’s Logistic Performance Index, Infrastructure indicator**



Source: World Bank Logistics Performance Index database.

Figure 7.2. **Infrastructure weakness is a deterrent to ASEAN trade integration**



1. Average non-tariff trade costs include all costs involved in trading goods relative to those involved in trading goods domestically. It captures trade costs in the wider sense, including not only international transport costs but also other trade cost components, such as direct and indirect costs associated with differences in languages, currencies and cumbersome import or export procedures.

Source: ESCAP International Trade Costs database and the World Bank’s Logistic Performance Index database.

## Lao PDR's infrastructure connectivity development strategy

The Eighth National Socio-Economic Development Plan 2016-20 is articulated within the context of the government's longer term plan to 2025 and the 2030 Vision. It reinforces the goal to continue Lao PDR's rapid growth path of recent years and graduate to a middle-income economy by 2020. It also aims to prepare the country for post LDC graduation, and for this it recognises the need to implement policies that will support productivity growth, along with consolidation of knowledge and skills, realisation of comparative advantage, acquisition and application of science and technology and continued diversification, emphasising the role of the agro-processing and tourism industries in regard. In particular, it identifies the continued need to strengthen economic integration within the region and broader economic diversification, notably by developing the agro-processing and tourism industries, as key strategies, and recognises the importance of infrastructure development for achieving such objectives (Government of Lao, 2015).

### ***Estimated infrastructure investment needs exceed available funds at large***

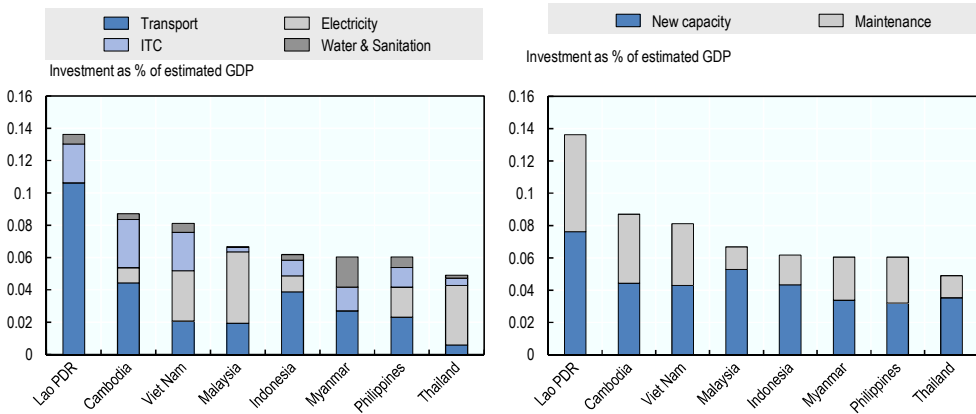
Supporting the government's vision to 2020 under the previous NSEDP, the Ministry of Public Works and Transport (MPWT) established the Strategic Plan for Highway Integration 2020 and Implementation Plan. The plan estimated that nearly USD 3.3 billion were needed in investments between 2010 and 2015 for implementing proposed transport upgrading and expansion projects supporting the objectives identified under the 7<sup>th</sup> NSEDP (2011-15). But available resources for road transport investments amounted to only USD 650 million or roughly 20% of estimated annual needs (ADB, 2011). Additional investment of USD 200 million per annum was estimated to be required in inland waterways, rail and aviation infrastructure to support the national development plan (ADB, 2011). The costs of maintaining the existing road network alone are already estimated to represent about 24% of the annual funds available to MPWT over the period (ADB, 2011).

In the power sector, estimates suggested that nearly USD 1.2 billion was needed in investments (new generating capacity, transmission and distribution, and maintenance of existing network) to meet expected power demand from 2010 to 2016. About half is required in the transmission system, including for continuing with the government's rural electrification programmes (USD 160 million) (ADB, 2013). The development of exporting hydropower plants has been useful to generate income from royalties, taxes and dividends, which have been directed towards financing local infrastructure. But investments in the transmission network have been

insufficient to build a fully integrated network. The order of magnitude in the investment gap clearly shows the important funding constraint for local infrastructure development, stressing the importance of proper identification and prioritisation of projects for making the most efficient use of available resources.

Independent estimates of Lao PDR’s infrastructure investment needs to satisfy consumer and producer’s demand for infrastructure services suggest much greater investment needs than the amount planned by the government (Figure 7.3). These estimates build on specific economic and demographic growth scenarios to estimate required levels of investment and provide an alternative check to the bottom-up estimations from the government based on the costs to implement identified projects.<sup>1</sup> Meeting demand would require nearly USD 11 billion in infrastructure investments in 2011-20 (Bhattacharyaya, 2010). This is equivalent to over 13% of the estimated GDP for 2010-20, which stands much above the estimated needs for other economies in the region. Around 56% of this is estimated to be needed in the building of new infrastructure capacity and 44% in the maintenance of existing capacity. Regional infrastructure projects to which Lao PDR is a party would require additional investments.

**Figure 7.3. Infrastructure investment needs in Lao PDR and selected ASEAN economies**  
(% of estimated GDP, 2010-20)



Source: Bhattacharyaya (2010).

### ***ODA has played a critical role for infrastructure connectivity improvements in Lao PDR***

The finance of infrastructure improvements in Lao PDR has greatly relied on the assistance of bilateral and multilateral donors. According to the OECD Aid Statistics database, gross disbursements of official development assistance (ODA) from the OECD Development Assistance Committee (DAC) donors and multilateral organisations to Lao PDR totalled USD 472 million in 2014, of which USD 53 million or roughly 12% was directed towards economic infrastructure.

In the road sector, which concentrates most of the investment needs, the MPWT has over time strengthened its ability to finance infrastructure expenditures, particularly through a substantial rise in the fuel levy in recent years (which constitutes the main source of capital of the Road Maintenance Fund established in 2011) and increased royalties and dividends from the large hydropower projects coming on stream (e.g. Nam Theun 2 Hydropower Project). But despite this, development partners still contribute a large share of total funding available to the sector. From 2009 to 2015, they were estimated to have contributed roughly 44% of the total available funding for road transport investments, including maintenance expenditures. About USD 50 million is needed per year from international development partners to sustain the government's road expenditure programme (ADB, 2011). Mobilising further domestic resources will therefore be critical in the future for the government to bridge closer to desired levels of investments in network improvements as identified in NSEDPs and upgrade and maintain existing assets.

### **Establishing an enabling environment for infrastructure investment**

Mobilising domestic and foreign resources for infrastructure is an important challenge. Both government and donor support will continue to be crucial to fund required infrastructure improvements (World Bank, 2013; ADB, 2011), but as GDP per capita rises, the funding capacity grows and further mobilisation of funds from infrastructure users or taxpayers become increasingly feasible. Other infrastructure delivery options also arise, notably through public-private partnerships. In the medium-to-longer term, securing the needed resources for infrastructure will require strengthened mechanisms to adequately prioritise and deliver projects in the most efficient manner.

### ***Encouraging greater private participation should not be done for fiscal reasons***

In view of the large capital needs for infrastructure development, the government has turned to PPPs “as a useful tool to help bridge the infrastructure gap and improve the performance of public services in the country” (ADB, 2013). For this, the Ministry of Planning and Investment has sought the assistance of the Asian Development Bank to help design and implement a new PPP policy and legal framework. The endeavour comprises three main areas, namely (i) institutional capacity building, (ii) policy and legislation framework development, and (iii) demonstration of model/pilot projects in social sectors, namely education and healthcare. A PPP conceptual framework has already been laid out and provides the path to gradually achieve the long-term PPP objectives of the government.

The framework’s rationale, however, as stated in the citation above, may be grounded on unreasonable objectives. The ambitious expectation that PPPs will mobilise the necessary resources to deliver on infrastructure investment needs is unlikely to materialise. The fiscal motivation underlying such policy orientation may even prove costly in the long-term if it prevails over proper value for money assessments (Box 7.1).

Moreover, it is rather unlikely that Lao PDR will be able to mobilise the needed resources from private commercial sources without any government financial involvement. Even the upgrading of NR13 – one of the most important economic corridors linking the country to neighbours in the north and south, passing by Vientiane Capital – would still require significant government support either through upfront investment or ongoing financial support (*i.e.* availability payments) (World Bank, 2013). In most PPP projects, the optimal risk allocation requires the government to bear the risks for which it is better placed to manage, mitigate and absorb, which often translates at least into contingent fiscal liabilities if not direct ones (OECD, 2007, 2012). Excessively transferring risks to the private party may erode part of the potential benefits of using PPPs in the first place.

In the appropriate environment, however, private investments in infrastructure can potentially help to increase the efficiency of infrastructure delivery. By bundling the responsibility for the initial capital investment with future maintenance and operating costs, PPPs provide incentives for the firm to minimise overall costs over the entire lifetime of the project. They may also help to insulate the project from stop-go funding characteristic of traditional delivery and protect maintenance expenditures by conditioning payments on service quality and availability (Perkins, 2013). But the potential for private sector efficiency gains can easily be dissipated if the regulatory framework for private participation is deficient. Transactions

costs associated with more complex contractual and governance structures required to ensure that the private sector delivers upon efficiency expectations, as well the costs of government oversight and regulation are not to be neglected. Likewise, inadequate project planning and risk sharing allocations in many transport PPP projects can result, and sometimes have, in expensive renegotiations for taxpayers (Perkins, 2013).

### Box 7.1. The rationale for private participation in infrastructure

Contrary to what is often believed, PPPs do not release government funds, and therefore do not expand the number of projects that the government can undertake. Instead, while the government saves on investment outlays up-front, it relinquishes future user-fee revenue (if the PPP is financed with user fees) or future tax revenues (if financed with budget payments) which should be equivalent to up-front capital investments in present value terms (Engel et al, 2007).

Investment in infrastructure projects is a matter of project cash-flow, *i.e.* the capacity to generate risk-adjusted returns, regardless of whether it is financed through user fees or taxes. In the case of availability-payment PPPs, in which private investors “lend” capital to the state, they will only do so if the state has the ability to repay them, in which case the state is not credit-constrained and public provision is potentially an option. But even in the case of PPPs funded partially or totally by user-fees, if the government can protect the project’s revenue stream from other uses, these revenues could likewise be used to repay debt under public provision as well. The perceived financial benefits of PPPs happens only because accounting rules have allowed PPPs to go off the balance sheet, allowing governments to anticipate spending and sidestep normal budgetary process since future obligations associated with PPPs are not required to be recorded on the public accounts (Engel et al, 2007).

The case for PPP should rely on its ability to generate greater value for money than the public provision alternative based on its capacity to generate productive, allocative and dynamic efficiency gains (Engel *et al.*, 2007). The use of PPPs as a vehicle for escaping budgetary discipline by having financial commitments off public sector balance sheets often leads to problems. Contingent liabilities and other fiscal risks associated with PPPs can sometimes be significant. It is internationally recognised that any fiscal implication of infrastructure projects should be reflected in public sector budgets unless all relevant risks truly reside with the private sector. If risks are mitigated by public guarantees, placing them off budget becomes even more questionable (OECD, 2007; 2012).

***Private investment has been largely concentrated in the exporting power sector***

Often a challenge to mobilise private investment in infrastructure is the government's lack of experience with PPPs and consequently its sometimes weak capacity to adequately select and implement projects in partnership with private investors. In general, in developing and emerging economies, this has been particularly acute for projects in the transport sector, although it varies across transport segments. In more commercially driven transport sectors, such as ports and airports, greater levels of private participation have been achieved. Road and rail transport projects have had more difficulty in attracting private investors. These projects are characterised by high up-front costs with long-term payback periods and normally only a limited capacity to extract enough revenue from user fees to cover costs, adding considerable barriers and complexity to attracting private investors. Their commercial viability is complex, sometimes requiring the government to take part of the responsibility for commercial risks of the project. Road projects also often face public resistance where tolls are first introduced. Therefore, investors are particularly sensitive to the investment environment around such projects.

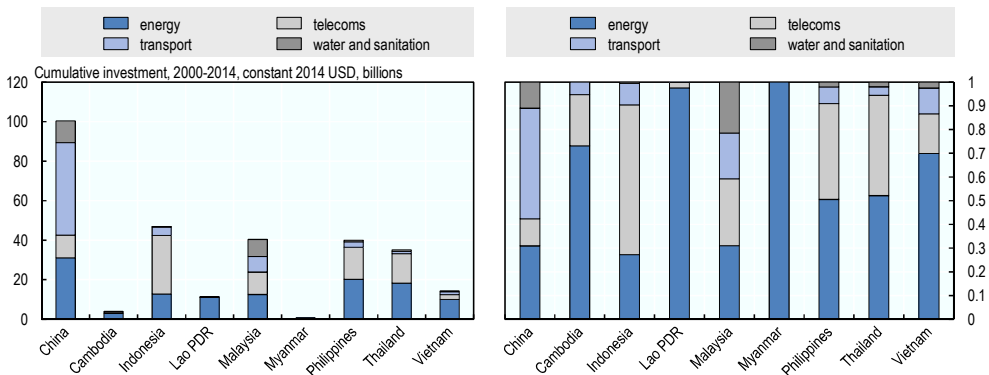
Private participation in infrastructure is not completely new to Lao PDR, so the government can leverage to some extent on its albeit limited experience so far. From 1991 to 2014, twenty projects reached financial closure with investments commitments totalling roughly USD 11 billion over the period (Figure 7.4). The large majority of investments have taken place in the electricity sector, where 15 projects reached financial closure during the period and accounted for nearly 97% of the investments. Most of the large hydropower projects that reached financial closure supply or are intended to supply power exports to neighbouring countries. Thai investors are the largest project sponsors in these projects, but some European investors have also participated. These projects have often been structured in the form of limited companies as per the *Law on Investment Promotion*, with the government or a state-owned company holding an equity interest.

Most of the projects developed so far, however, have been directly negotiated, failing to benefit from the potentially enhanced value-for-money arising from competition. Most of the potential efficiency gains provided by private parties are expected to occur at the contractual stage. Thus, ensuring a transparent and competitive tendering environment for such contracts is a critical condition for private investments through PPPs to deliver upon its value for money expectations. Direct appointment should be reserved to exceptional cases.



Figure 7.4. **Private participation in infrastructure in Lao PDR and regional peers, 2000-14**

(USD billion 2014)



Source: World Development Indicators database. Dollar amounts are in 2014 USD. As per the World Bank Global PPI update reports, nominal figures have been deflated using the U.S. consumer price index.

### *The need for improved infrastructure planning and project prioritisation capacity*

Securing necessary resources to develop infrastructure and making infrastructure networks attractive for private participation where appropriate are made easier when infrastructure policy priorities are fully embedded in national economic development strategies, accompanied by a credible pipeline of projects, and are supported by a clear regulatory and institutional environment. This helps to secure greater policy co-ordination and alignment across the different levels of government and to assure investors of the government's long-term political commitment to infrastructure development.

In Lao PDR, the ADB's (2011) latest transport sector assessment pointed to some of the difficulties the government faces when planning and prioritising infrastructure projects. As it is understood, within the context of the national 5-year plan and in the beginning of the planning cycle, the MPI collects financial plans from the provinces and relevant government agencies for their proposed investments in infrastructure. It then allocates the available funding to each of the national, provincial, and district units, based on predetermined sectoral priorities. Funding allocations remain an annual exercise, despite requiring ministries and government agencies to prepare their investment planning estimates over a 3-5 year horizon.

Requests for funds often exceed the funds available. The process is also said to involve intense lobbying by the interested parties. The Ministry of Finance is consulted in the process but does not have a central role in its preparation (ADB, 2011).

There is a need to move towards more clear and predictable medium-term planning and funding allocations to increase stability for priority infrastructure projects and programmes and facilitate the co-ordination with donors (ADB, 2011). Budget constraints need to be more firmly incorporated in project selection and prioritisation. The government needs also to strengthen its value for money assessment framework through more structured project appraisal procedures. Cost-benefit analysis of projects should be carried out systematically for deciding which projects should be prioritised and whether projects would be better financed with budget resources or through PPPs for ensuring the best value for money, taking into account all the involved risks and their actual allocation between parties, including any contingent liability for the public sector. In this respect, the government may wish to establish a framework for preparing public investment and PPP proposals and feasibility studies in order to facilitate project comparison and prioritisation according to projects' socio-economic importance, environmental sustainability and financial feasibility.

### ***Establishing a credible institutional and legal framework for private participation in infrastructure***

The government wants to build a credible environment for PPPs, and has sought assistance from the ADB to help design and implement a new PPP framework. Establishing such a building block is necessary. Currently, no proper PPP legal and institutional framework is in place. These reforms are also aligned with those undertaken by other ASEAN economies (OECD, 2014). Many ASEAN governments have recently taken a more comprehensive approach towards building or upgrading their existing PPP regulatory and institutional frameworks. The Indonesian experience, for instance, offers an interesting example of a conceptually overarching institutional structure to mobilise private investments in infrastructure (Box 7.2). Although implementing such a structure has proved to be difficult in practice, its design theoretically provides for enhanced co-ordination of infrastructure policies across ministries and between the central and local governments, as well as better project preparation and execution.

### Box 7.2. Indonesia's institutional structure to mobilise private investment in infrastructure

The experience of Indonesia offers a good example of a comprehensive approach towards building the institutional structure for facilitating private investment in infrastructure, while at the same time managing any contingent liabilities. The Indonesian government has created an adequately staffed PPP Unit, the Centre for Government-Private Co-operation, within the infrastructure inter-ministerial committee (KKPPI) and the Ministry of National Development and Planning (Bappenas), responsible for formulating policy, and co-ordinating and assessing PPP projects in infrastructure. In addition, Indonesia has created structures to facilitate the management of risks associated with PPP projects, including political, performance and demand risks, and to provide long-term financing for infrastructure projects to overcome some limitations of the local debt market.

The **Centre for Government-Private Co-operation (PKPS)** within Bappenas is to prepare and formulate policy, as well as co-ordinate, synchronise and evaluate government-private sector collaboration in infrastructure. Through the PKPS, prospective investors in infrastructure projects can obtain information on offered projects, including investment procedures and the rules of the game. The Centre has published a PPP Book containing a list of the country's infrastructure projects that are being offered to private investors and is intended partly to gauge investor interest. A 2009 edition has been followed by a 2010-14 version.

A **Project Development Facility** (in operation under Bappenas) funds project preparation so that government agencies can prepare detailed feasibility studies and bidding documents up to international standards before tendering the project.

A **Risk Management Unit** within the Ministry of Finance evaluates projects prepared by the PPP Unit and decides on the appropriate level of government financial support.

**Infrastructure Guarantee Fund.** The Fund was established at the end of 2009 to improve the creditworthiness of PPP projects by providing guarantees of financial compensation in the event of changes in government policies causing projects to be cancelled. The Fund is also expected to allow the government better to manage its own fiscal risk by ring-fencing government obligations *vis-à-vis* guarantees. It has been established as a state-owned company and funded through the state budget together with loans from the ADB and the World Bank. According to the Minister of Finance, the fund enables parliament to participate in setting the aggregate resource envelope for guarantees while allowing KKPPI and the Ministry of Finance to decide on the allocation to individual projects.

**Indonesia Infrastructure Financing Facility.** The IIFF, established on 15 January 2010, acts as a non-bank financial intermediary to mobilise mostly local financing for infrastructure and to help develop capacity in both the government and the domestic financial sector to develop viable PPP projects. The facility conforms to international best practices concerning corporate governance and risk management. The government holds a minority share, together initially with both the ADB and the IFC (with the World Bank providing a subordinated loan). Ultimately, the private sector is expected to take a share in the IIFF, once it has demonstrated its effectiveness.

*Source* : reproduced from OECD (2010).

As part of the reform efforts, the government plans to develop a Prime Minister's PPP Decree, consistent with international practice and compliant with Lao legislation. A draft decree has been prepared and made available for consultation on the MPI website. The draft available is now in its 7th version, dated from June 2015. Together with a *Law on Public Investment*, the draft decree brings some important regulatory and institutional mechanisms to improve infrastructure delivery capacity. For instance, it recognises the importance of establishing competitive tendering for such projects to delivery upon value-for-money expectations. It also foresees the establishment of a project development facility, funded initially through the state budget and ODA, to support government agencies in preparing and tendering projects. These resources will be critical for the government to prepare detailed feasibility studies and bidding documents up to international standards to create a credible pipeline of bankable projects.

The new PPP decree also demonstrates the government's increased commitment to provide funding to PPP projects that have strong economic returns but may not be commercially viable. For this, it foresees the provision of viability gap funding by the government, including availability payments. In this respect, the government may wish to consider the Indonesian experience (Box 7.2) and set up a dedicated fund to help assure PPP investors of its capacity to meet its commitments beyond the budget cycle and enhance the transparency and management of associated fiscal obligations. The decree also clearly states the right of project companies to create security interests over its assets, rights and interests, in the PPP project, and provides for alternative disputes resolution mechanisms, such as foreign arbitration.

Another important development is the envisaged creation of a PPP unit within MPI to be headed by a high-ranking official, vice-minister or above. While a PPP unit does not guarantee better results, it facilitates bringing together the necessary skills to identify, develop and negotiate projects suitable to private participation. It also diminishes the costs associated with co-ordinating interaction and responsibilities of various government agencies. In ASEAN, several countries have established or are in the process of establishing dedicated PPP units or specialised teams within the different ministries and relevant agencies (OECD, 2014). Limited delivery capacity of state agencies, both in terms of dedicated staff and sufficient budget for PPP preparation, are often an important part of the explanation for the limited number of bankable project proposals coming to the market. Weak state institutions, unclear legislation and deficient contract design have also been associated with frequent contract renegotiations which are costly for the taxpayer (Bitran *et al.*, 2013; Guasch *et al.*, 2014).

Many challenges still remain unaddressed, however. To begin with, the draft language requires improvements. On many occasions, it lacks an appropriate level of clarity to give confidence to investors and lenders. Another important issue relates to how such a PPP decree would relate to the *Law on Investment Promotion*, which regulates investments in concessions. Ideally, a unified regulatory regime for investments in infrastructure would be preferable. Having fragmented regimes increases the risks of inconsistencies and represents a source of uncertainty for investors. But if not possible, authorities should be careful in ensuring consistency between the PPP decree and the concession framework set out in the *Law on Investment Promotion*. The decree would also benefit from strengthened clarity on the institutional roles of the different ministries and agencies involved. The role of the Ministry of Finance, for instance, remains unclear as to whether it has any veto or approval power in the process. The absence of specific procedures for smaller projects should also be addressed. These projects may not necessarily need to be tendered and could go through direct negotiation on an exceptional basis. Greater clarity is also needed with regards to the powers of the government agencies to issue guarantees for PPPs, and on the rules governing the allocation of public support to PPP projects in order to ensure value for money.

The draft decree is also silent on land clearance and compensation issues. It would be preferable if the law clarified the institutional responsibility of the PPP unit or other agencies in obtaining land use, environmental and construction permits, as well as obtaining compulsory land expropriation clearance from the responsible judicial and administrative authorities when necessary, before calls for tender are made. In this respect, the government should also engage early in consultations with any affected party to mitigate any adverse social impact associated with land requirements by PPP projects (OECD, 2007, 2012). The PPP framework should, likewise, guarantee against changes in land use purpose during the entire execution of the project period, even when the project lender exercises the right to take over the project.

The current draft PPP framework also provides only limited guidance on the circumstances and the extent to which renegotiations are permitted, leaving large scope for these issues to be negotiated and stipulated by the parties in the contractual agreements. The lack of appropriate guidance may increase the risks of opportunistic renegotiations by the parties. Renegotiations have been common to PPP projects worldwide, often shortly after contracts are signed and to the detriment of initial value for money assessments, commonly resulting in direct and contingent liabilities for the government and lower efficiency and quality for users (Bitran *et al.*, 2013; Guasch *et al.*, 2014). Renegotiations will occasionally be necessary in long-

term infrastructure projects, and it is good practice to incorporate explicitly in contracts the conditions under which they may be reconsidered or renegotiated (OECD, 2007). At the same time, the outcomes of any renegotiation should not substantially modify the project's original risk allocation and jeopardise value for money. It should have no impact on the net present value of the project's benefits (Guasch *et al.*, 2014).

Many of the contents of the draft decree would also need to be further clarified in implementing regulations and guidance documents. Guidance is needed to support PPP preparation, evaluation and selection. Notably more detailed guidelines and standards are needed to ensure project proposals and feasibility studies' quality and comparability and to ensure the quality of bidding documentation. Guidance is also required for implementing the mechanisms for early-on project termination and residual value repayment at end of PPP contract terms. Standardisation of PPP contract provisions in line with international standards should also facilitate such transactions. Implementing regulations need also to establish more detailed guidance for unsolicited proposals. The current draft, for instance, rightly subjects these proposals to competitive tendering, but fails to address with a greater level of clarity the rules and procedures for them to be undertaken (*e.g.* what should constitute a valid unsolicited proposal; would unsolicited project proponents be given any preference margin in the tendering of the project; would they be entitled to recover project preparation incurred expenditures from the winning bidder if different from the proponent).

Lastly, another barrier to raising infrastructure investment is the limited availability of domestic financing. Lao PDR's financial sector capacity is still relatively underdeveloped to finance large and long-term PPP infrastructure projects. PPP projects will likely require investors to have recourse to foreign bank loans denominated in foreign currency for undertaking such investment in Lao PDR, which increases considerably the risks for foreign investors and lenders since it exposes them to important currency risks since projects' revenues would be mostly denominated in local currency. Investors would, therefore, seek guarantees against exchange rate and currency convertibility and remittance risks. Multilateral financing and official development assistance will thus continue to play a key role in financing infrastructure investment in Lao PDR. They can play a particular role in leveraging the conditions for greater private sector participation, including by backing up government commitments towards private investors and providing investors with risk guarantees, besides assisting the government to improve its planning and implementation capacity.

Adopting PPPs is not straightforward. It will take some time for the government of Lao PDR to adapt and implement the required reforms to support a credible PPP programme. But there is strong regional commitment

and multilateral support to help it advance in building its capacity to deliver and manage PPPs. This is also in the interest of other ASEAN member states. The entire region stands to benefit from improvements in national infrastructure systems, besides enhanced regional connectivity associated with cross-border infrastructure projects.

## Note

1. Estimates of investment required have many methodological drawbacks and should be interpreted with caution. Most importantly, they do not represent the level of infrastructure that would maximise growth or socio-economic targets, but rather are based on past observed behaviour of the relationship of income level and infrastructure demand in a sample of countries and extrapolated for the future using predicted income growth (Ruiz-Nuñez and Wei, 2015).

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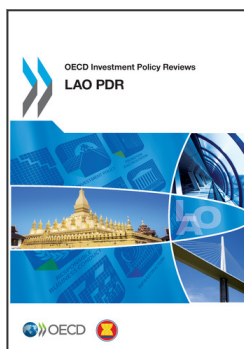


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