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Tackling the Infrastructure Challenge in Indonesia

Mauro Pisu

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By
Mauro Pisu

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ABSTRACT/RESUME

Tackling the infrastructure challenge in Indonesia

Indonesia's infrastructure is in poor shape, having suffered from protracted under-investment since the Asian financial crisis of the late 1990s, and constraints growth potential. This paper focuses on the current state of the regulatory framework and discusses different options for improvement in order to attract needed private investment. It recognises the ambitious reforms undertaken by the government thus far, but suggests that further efforts are needed. The authorities should establish a simple regulatory environment based on effective regulatory agencies resulting in lower regulatory uncertainty and realign prices to cost-recovery levels. This Working Paper relates to the 2010 *OECD Economic Review of Indonesia* (www.oecd.org/eco/surveys/Indonesia).

JEL classification codes: H54; H81; H43; K23

Keywords: Indonesia; infrastructure; PPPs; regulatory framework

Relever le défi de l'infrastructure en Indonésie

L'infrastructure indonésienne est en mauvais état, ce qui tient au sous-investissement persistant dont elle a souffert depuis la crise financière asiatique de la fin des années 90, et bride le potentiel de croissance. Le présent chapitre analyse l'état actuel du cadre réglementaire et examine les différents moyens de l'améliorer de manière à attirer les investissements privés nécessaires. Il tient compte des réformes ambitieuses auxquelles les autorités ont procédé jusqu'à présent, mais tend à démontrer que de nouveaux efforts s'imposent. Les autorités devraient établir un cadre réglementaire simple s'appuyant sur des organismes de réglementation efficaces, ce qui atténuerait l'incertitude en la matière et alignerait les prix sur le niveau de récupération des coûts. Ce Document de travail se rapporte à l'*Étude économique de l'OCDE de l'Indonésie 2010* (www.oecd.org/eco/etudes/Indonesie).

Classification JEL : H54 ; H81 ; H43 ; K23

Mots clefs : Indonésie; infrastructure ; PPPs ; cadre réglementaire

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Table of contents

Tackling the infrastructure challenge in Indonesia	5
The state of infrastructure	5
Financing investment in infrastructure	9
Public spending and efficiency.....	9
Extent of private participation.....	12
Comparing Indonesia’s regulatory framework with OECD countries.....	16
Sectoral regulator	16
Price regulation	19
Permissions and calls for tender.....	21
FDI restrictions.....	21
Selected infrastructure sectors	22
Electricity	22
Water and sanitation services	25
Road transport	29
Telecommunications	31
Ports and shipping	33
Bibliography	37

Boxes

1. Infrastructure and economic growth.....	8
2. Public Private Partnerships	14
3. Regulatory environment and infrastructure outcomes.....	16
4. The establishment of regulatory authorities	17
5. Rural electrification programme in Chile	25
6. The experience of private-sector participation in the water sector in Jakarta.....	26
7. State revolving funds: The US experience	29
8. Summary of policy recommendations: Infrastructure	35

Tables

1. Selected infrastructure indicators	7
2. Presence of at the least one regulatory authority	17
3. Independence of the regulatory authority	18
4. Powers of regulatory authorities in infrastructure industries.....	19
5. Degree of price regulation in infrastructure industries	20
6. Investment planning	21
7. Sources of light by income levels	23
8. Access to telecommunications services by income levels, 2008.....	32

Figures

1.	Size of infrastructure sectors	6
2.	Quality of national, provincial and district roads, 2006	8
3.	Public infrastructure spending	10
4.	Central government budget deficit	11
5.	Value and number of PPP projects over time	12
6.	Sector share of total investment commitments and number of projects	13
7.	FDI legislation in selected infrastructure sectors, 2009.....	22
8.	Private and captive power plant production	23
9.	Distribution of productivity levels of water-supply establishments across provinces.....	27
10.	Total length of road networks and share of asphalted roads.....	30
11.	Share of ships by type of ownership.....	34

Tackling the infrastructure challenge in Indonesia

By Mauro Pisu¹

Boosting infrastructure will be key to raising Indonesia's long-term prospects in the years to come. Following the 1997-98 crisis, public and private investment in infrastructure plummeted from around 5-6% of GDP to about 1% of GDP in 2000 (World Bank, 2007). Although it has since increased to around 3.5% of GDP, the current rate of investment is insufficient to raise the GDP growth rate to the government's target range of 7.0-7.7% in 2014.

As a result of a decade of under-investment Indonesia's infrastructure is in dire condition. Road congestion poses significant problems and electricity supply has not kept pace with growing demand, resulting in frequent power outages. Retail tariffs for most infrastructure services are below cost-recovery levels, especially in power and water supply, thereby discouraging new investment. Land-acquisition procedures for infrastructure projects remain cumbersome and have significantly slowed down the extension of the road network.

The government is well aware of the stakes involved in improving infrastructure and has made it one of its main policy priorities. In its Medium Term Development Plan 2010-14, it announced plans to invest IDR 1 429 trillion (USD 157 billion, around 25% of GDP in 2009) from 2010 to 2014 in infrastructure, of which around 64% would be privately financed. To entice private investment and close the financing gap, Indonesia needs to build on recently undertaken reforms and further improve the regulatory framework.

This study describes the state of Indonesia's infrastructure and compares the regulatory framework in different sectors with those of OECD countries. It then deals with issues in selected sectors, namely road transport, sea transport, electricity, telecommunications and water and sanitation.

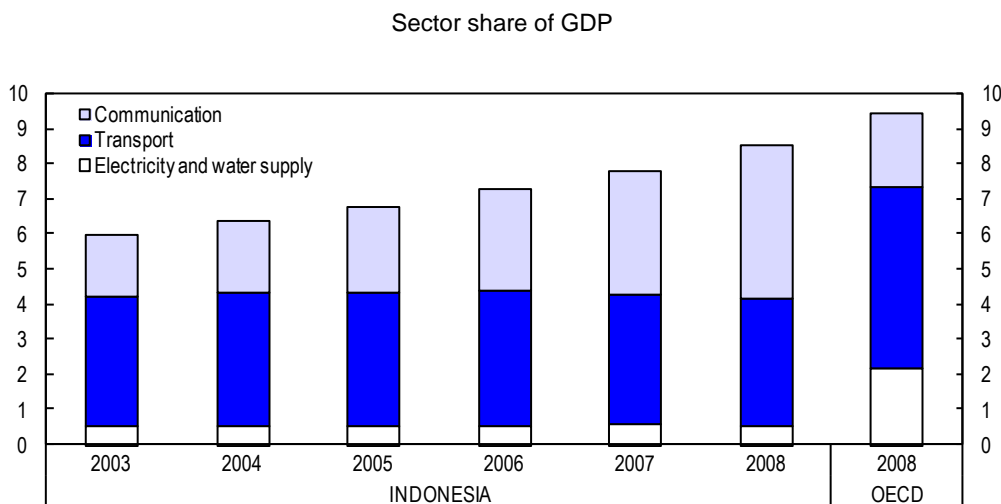
The state of infrastructure

Indonesia has under-invested in infrastructure for about a decade, reflecting, *inter alia*, sharp capital spending cuts implemented in the wake of the Asian crisis, low private participation and administrative capacity constraints (World Bank, 2007). This has resulted in deteriorating infrastructure quality and quantity. The rise in the size of Indonesia's infrastructure sector from 2003 to 2008 is totally attributable to the telecommunications industry, which has benefitted from regulatory reforms started earlier than in the other sectors and now represents a much larger share of output than in the average OECD country

1. Economist in the OECD Economics Department. This paper reports on background work for the 2010 *OECD Economic Survey of Indonesia*. The author is grateful for the valuable comments received on earlier drafts from Andrew Dean, Robert Ford, Annabelle Mourougane, Peter Jarrett, Luiz de Mello, Douglas Sutherland, as well as for comments from, and discussions with, officials from Indonesian government and the World Bank Office in Jakarta. Special thanks go to Anne Legendre for statistical assistance and to Mee-Lan Frank for editorial support.

(Figure 1). Excluding telecommunications, the shortfall with the OECD in terms of the value added share in transport, electricity and water actually increased during the period.

Figure 1. **Size of infrastructure sectors**¹



1. The figures for electricity and water supply sectors are aggregated, as many OECD members do not report separate figures. In Indonesia, water supply is the smallest among all infrastructure sectors, accounting for a stable share of GDP (0.5%) from 2003 to 2008. The share of the electricity remained at less than 1% of GDP during the same period. OECD excludes Chile, Israel, Mexico, Slovenia and Turkey.

Source: STAN database and BPS.

With the exception of its mobile cellular network, Indonesia is lagging far behind in infrastructure stocks compared to the OECD and regional peers (Table 1). The gap in access to the internet and mobile and fixed-line subscriptions with Southeast Asia and the OECD appears to have narrowed as has, to a lesser extent, that in electric power consumption. However, the divide has widened with respect to access to improved sanitation facilities and water sources, quality of roads, and fixed broadband and international internet bandwidth. Also, the efficiency of the electricity transmission and distribution network declined from 2000 to 2008. Power outages have also become more frequent in recent years since generation capacity has not kept pace with the growth in demand. Of particular concern is the state of the water and sanitation sector. It features poor access and service quality. The percentage of households connected to improved water sources and sanitation is low not only in comparison to OECD standards but also to regional peers.

Indonesia also compares poorly in terms of the quality of infrastructure, though the latter is notoriously hard to gauge. The Global Competitiveness Report of the World Economic Forum 2010-11 ranks Indonesia 82nd out of some 140 countries in that regard. According to these perception-based indicators, the gap in infrastructure quality as compared with Southeast Asia is particularly manifest in roads and ports and, to a lesser extent, in railroads and air transport.

The quality of the existing infrastructure stock seems to have deteriorated because of a lack of adequate maintenance. Transmission and distribution losses are higher than in regional peers and the OECD (Table 1). Electricity brown-outs are frequent. In autumn 2009 they severely affected the capital city, Jakarta, prompting the state-owned company *Perusahaan Listrik Negara* (PLN) to start urgent maintenance works. A large share of roads is also not in good condition. In 2006 the share of roads classified either as in good or medium condition, as opposed to damaged or heavily damaged, was 82% for national roads, 54% for provincial roads and 47% for district roads. As around 90% of the road network is

under the responsibility of provincial or district authorities, only around 51% of all roads were in medium or good condition in that year (Figure 2). As regards water supply, non-revenue water (*i.e.* water that does not generate revenues, either because lost or stolen) is for many water-supply establishments well above 50% (Godman, 2005). In Jakarta, which has one of the most efficient water supply networks in the country, non-revenue water was still 50% in 2008 (Lanti *et al.*, 2009).

Table 1. **Selected infrastructure indicators**

	Indonesia			Southeast Asia ¹	OECD ²
	1995	2000	2008 ³	2008 ³	2008 ³
Water and sanitation					
Improved sanitation facilities (% of population with access)	51	52	52	83.3	99.9
Improved water source (% of population with access)	74	77	80	95.5	99.6
Energy and transport					
Electric power consumption (kWh per capita)	271.6	402.3	566.0	1759.2	9871.4
Electric power transmission and distribution losses (% of output)	11.7	10.9	10.6	7.9	5.9
Roads, paved (% of total roads)	52.4	57.1	55.4	79.8	79.0
Information and communication technologies					
Fixed broadband subscribers (per 100 people)	..	0.002	0.176	2.5	25.0
International Internet bandwidth (bits per person)	..	1.2	34.9	2375.5	19 342.6
Internet users (per 100 people)	0.03	0.93	7.9	27.5	71.1
Personal computers (per 100 people)	0.5	1.0	2.0	13.3	69.9
Fixed broadband Internet access tariff (USD per month)	21.7	19.7	30.4
Mobile and fixed-line telephone subscribers (per 100 people)	1.8	5.0	74.9	98.0	149.5
Mobile cellular subscriptions (per 100 people)	0.1	1.8	61.6	86.4	103.4

1. Unweighted average of Malaysia, Thailand, Philippines and Vietnam.

2. OECD excludes Chile, Israel, Mexico, Poland, Slovenia and Turkey.

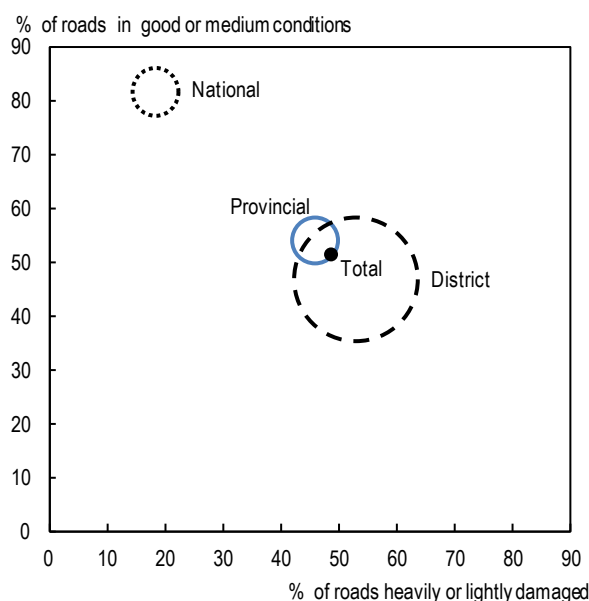
3. 2008 or latest available year.

Source: World Bank (*World Development Indicators*).

A study by the Asian Development Bank estimated the maintenance costs for rural roads, irrigation and water infrastructure to be about 5% of the original investment annually (ADB, 2009). The collection of such a maintenance fee appears to be financially feasible in many communities and is already used for some water-supply projects.

There is evidence that the lack and poor quality of infrastructure are holding back investment and economic growth. A survey of Japanese foreign affiliates ranks underdeveloped infrastructure as the most important barrier to investment in the Indonesian manufacturing sector and the third most important in services (JETRO, 2009). In a survey by the Regional Autonomy Watch 27% of surveyed firms have identified infrastructure as the most important local constraints on their business activities (KPPOD, 2008).² The theoretical and empirical literature suggests that the positive effect of infrastructure on growth tends to be higher in less developed counties (Box 1). Therefore, Indonesia has potentially much to gain from improving its infrastructure.

2. The other constraints considered in the survey are: land access; business licensing; local government and business interaction; business development programmes; capacity and integrity of the mayor; local taxes and use charges; security and conflict resolution; and local regulations.

Figure 2. **Quality of national, provincial and district roads, 2006**¹

1. The size of the empty circles is proportional to the share of the total road network under the responsibility of the different levels of government.

Source: Ministry of Public Works.

Box 1. Infrastructure and economic growth

Although empirical estimates of the relationship between infrastructure and economic growth vary considerably, the consensus in the literature seems to have settled on the hypothesis that the impact of the former on the latter is positive and inversely related to the degree of economic development (Estache and Fay, 2007; Straub, 2008). The literature has identified several channels through which infrastructure might impact on growth, but their relative importance is unclear (Agénor and Moreno-Dodson, 2006):

- **Higher productivity of private inputs:** this effect results from the complementarity between inputs. In this case, a larger stock of infrastructure will increase the productivity of other inputs (Albala-Bertrand and Mamatzakis, 2004);
- **Higher private capital formation:** by raising the productivity of capital, along with that of the other private inputs, infrastructure is likely to increase marginal rates of return and private investment;
- **Lower adjustment costs of private capital:** this allows firms to adjust their capital stock to its optimal level in response to any shock;
- **Increasing the durability of private capital:** expanding and maintaining the quality of infrastructure might enhance the longevity and productivity of private capital and lower the maintenance costs of machinery and equipments;
- **Indirect positive effects on labour productivity:** better transport and communications infrastructure reduces commuting time, allowing workers to be geographically more mobile and productive;
- **Improving health and education outcomes and magnification of their impact on growth:** access to basic infrastructure impacts positively on education and health status; piped water and basic sanitation contribute to lower mortality and morbidity rates, especially among children, whereas electricity improves health and hygiene by lowering the costs of boiling water and cooking, in addition to improving educational outcomes (Warwick and

Doig, 2004; Saghir, 2005);

- **Increasing the volume of trade:** Bougheas *et al.* (1999) show the stock of infrastructure and the volume of trade are positively related. Limão and Venables (2001) find that infrastructure is an important determinant of transport costs and conclude that poor infrastructure accounts for much of the different transport costs observed in coastal and landlocked countries. Djankov *et al.* (2006) find that each additional day of delay in shipping a cargo abroad reduces trade by more than 1%. Donaldson (2008) shows that the development of Indian railroads from 1861 to 1930 raised real income and welfare by allowing regions to specialise in their comparative advantage sectors and increasing trade among them.

Most delivery of infrastructure services has been corporatised, although the State still retains a major role in infrastructure development by providing services through Persero (*i.e.* profit earning and state-owned) enterprises. Many Perseros were created in the 1990s, and the performance of some of them has improved significantly since then to the point of not requiring government support anymore, as in telecommunications. By contrast, in many sectors, such as electricity and ports, SOEs have been unable to invest the necessary resources to improve the infrastructure network, even sometimes to maintain it. Furthermore, excluding telecommunications and toll roads, the level of competition in infrastructure sectors is still limited because of the regulatory environment, which has deterred private investment (OECD, 2010).

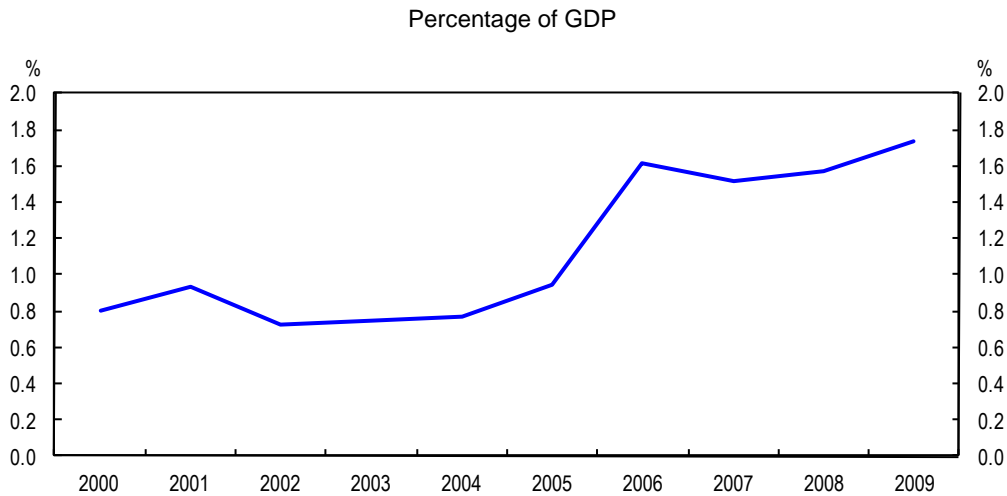
Infrastructure quality varies considerably across and within provinces with some of best districts being in East Java and the worst in North Sumatra (KPPOD, 2008). Decentralisation may have exacerbated differences in infrastructure services at local level. Local governments are now responsible for the provision of some infrastructure services, such as roads, water and sanitation, without however having the necessary planning and financing instruments to deliver them (KPPOD, 2008). The dramatic differences in infrastructure services across districts highlights that good performance is not always related to financial or natural endowments, but is primarily the result of sound political leadership and administrative capacities at local level.

Financing investment in infrastructure

Public spending and efficiency

After having collapsed in the wake of the Asian crisis, public spending on infrastructure increased in the last ten years, although it remains well below its pre-crisis levels. From 2000 to 2009 public spending on infrastructure increased from 0.8 to around 1.7% of GDP, although most of the increase took place before 2006 (Figure 3).

Figure 3. Public infrastructure spending



Source: Ministry of Finance and OECD calculations.

A large share of government's infrastructure budget is allocated to individual ministries (85% in 2009). The remaining part is spent on various programmes and funds not tied to any particular ministry, such as the Land Capping Fund and the Special Allocation Fund (*Dana Alokasi Khusus* or DAK).³ The Ministries of Public Works and of Transportation are responsible for most public spending in infrastructure channelled through ministries (40% and 19% in 2009, respectively).

The current allocation of responsibilities for infrastructure development is split among different ministries and agencies without any clear hierarchical authority. This arrangement is inefficient, as no agency provides the necessary degree of coordination, leadership and expertise to plan, execute and roll out infrastructure projects in a timely manner (Purra, 2010). The Ministry of Finance allocates the infrastructure budget to several other ministries. The Co-ordinating Ministry for Economic Affairs is supposed to coordinate overlapping activities, as in infrastructure projects, whereas the Ministry of National Development and Planning (Bappenas) is responsible for general development, planning policies and policy formulation. Lack of coordination and capacity is one of the reasons why the infrastructure budget is often under-spent, with spending concentrated at the end of the year. The government has tried to overcome this problem by creating inter-ministerial agencies, such as the National Committee for the Acceleration of Infrastructure Provision (KKPPI) and the National Energy Council, for energy policy (Mourgoune, 2010), which should offer independent and expert advice on their areas of responsibility and improve coordination among other agencies. However, their lack of concrete powers to shape policies and make decisions, and their insufficient independence from line ministries, has jeopardised their effectiveness.

Co-ordination among the different ministries and agencies responsible for infrastructure development needs to be improved, either by giving more effective coordinating powers to the Coordinating Ministry for Economic Affairs or to Bappenas or by creating a new agency directly responsible for infrastructure development. In 2008, Australia established an agency, Infrastructure Australia, to coordinate infrastructure development by advising central and local governments on priorities and possible financing

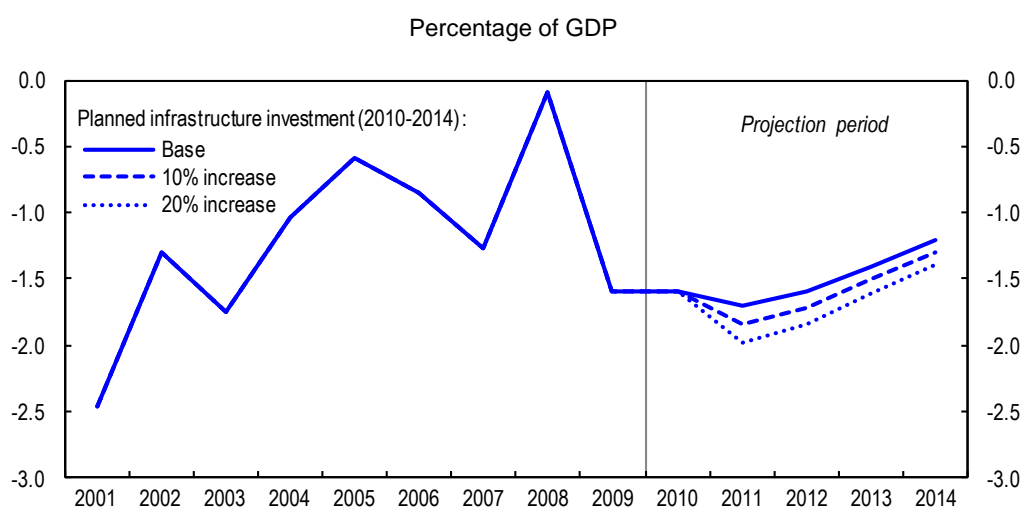
3. DAK accounts for a non-negligible share of the total infrastructure budget, around 7.4% in 2009. DAK is a fund used to make *specific* fiscal transfers to regional and district governments needing additional financial resources to raise the provision of public services in different sectors, among which infrastructure, and finances mainly physical capital investment.

mechanisms. Although it is too early to evaluate it, its establishment signals the need to tackle the challenge of building and renewing infrastructure with innovative policy solutions so as to prioritise projects and overcome coordination problems.

In addition to low infrastructure spending in comparison with the country's needs, Indonesia suffers from persistent under-spending of budget resources allocated to infrastructure. Due to a lack of effective multi-year budgeting for investment projects, capital outlays tend to be concentrated at the end of the fiscal year, creating uncertainties regarding the successful completion of infrastructure projects spanning several fiscal years. Since 2003, a Medium-Term Expenditure Framework allows for multi-year budget appropriations and is scheduled to be implemented in 2011, with the first year being binding. The authorities should concentrate on using this framework to improve multi-year budget appropriations for infrastructure projects so as to avoid chronic under-spending and making spending more consistent over time.

Whereas several measures have already been taken to attract private investment in the sector (see below), their effects may take some time to materialise. At the same time, raising the amount of infrastructure investment the government intends to finance from 2010 to 2014 by even 10 or 20% per year will not have a dramatic effect on the budget. This suggests there could be the fiscal space to increase the public investment share from 36% to more than 40%. Considering OECD *Economic Outlook* projections for 2010 to 2012 and a nominal GDP growth rate of 12% per year from 2013 onwards, increasing public infrastructure investment by 20% from 2011 to 2014 will add around 0.2 percentage point to the yearly deficit-to-GDP ratio projected by the Medium Term Development Plan 2010-14 (Figure 4). This is probably an upward estimate as it ignores the direct effect of public infrastructure spending on GDP. To give an order of magnitude, the additional investment could be almost fully financed by the budget savings resulting from lowering fuel subsidies by about one-fourth (Mourougane, 2010).

Figure 4. **Central government budget deficit**¹



1. Scenarios are based on the assumption of a nominal GDP growth rate of 14.9, 16.4 and 14.2% per year for 2010, 2011 and 2012, and 12% for 2013 and 2014.

Source: Medium Term Development Plan, Ministry of Finance and OECD calculations.

The urgent need to launch new infrastructure projects should not come at the expense of maintaining and improving the existing infrastructure stock. Greater focus on maintenance is needed. However, maintenance expenses vary considerably across sectors and time according to demand and other sector

characteristics. Sector studies are required to gauge the maintenance expenditure needed to preserve the quality of the existing infrastructure stock and to allocate budget resources accordingly.

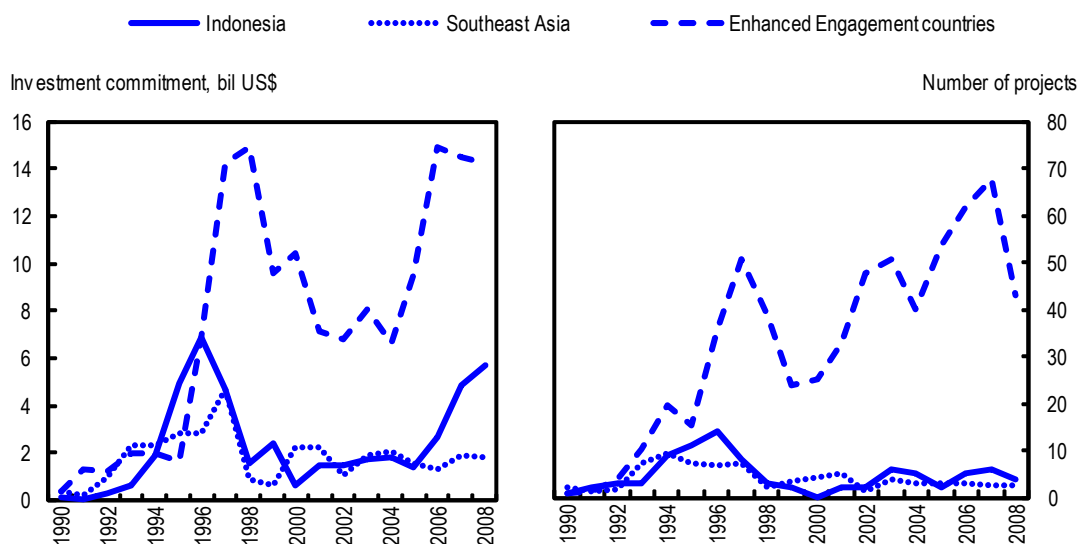
Extent of private participation

The increase in infrastructure investment as laid out in the Medium Term Development Plan relies significantly on private financing. If the private sector has to cover around 64% of the planned investment spending over the 2010-14 period, it will need to sign around USD 20 billion of investment commitments each year. This figure is well above the peak PPPs reached in 1996 and highlights the scale of the challenge ahead (Figure 5).

Data on PPPs in Indonesia show that the number and investment commitments of PPPs collapsed after the Asian crisis, but have recovered in recent years. Before 1998 Indonesia used to attract more PPPs than its regional peers. After the crisis and the devaluation of the *rupiah* the number and value of PPPs plummeted. Subsequently, they started to recover in the middle of the decade, in response to improved macroeconomic conditions, ample liquidity in international markets, and a friendlier environment for private investment in infrastructure, as underlined in the OECD’s 2008 *Economic Assessment*.

The breakdown of PPPs by sector varies over time, with telecommunications accounting for the bulk of investment commitments. The share of energy is also important, particularly when measured in terms of number of projects (Figure 6). After the Asian crisis, PPPs concentrated even more on energy and telecommunications, whereas transport, because of land acquisition problems, and, to a larger extent, water and sewerage played more modest roles. Strong PPPs’ investment commitments in telecommunications reflected a small number of large private investment projects.

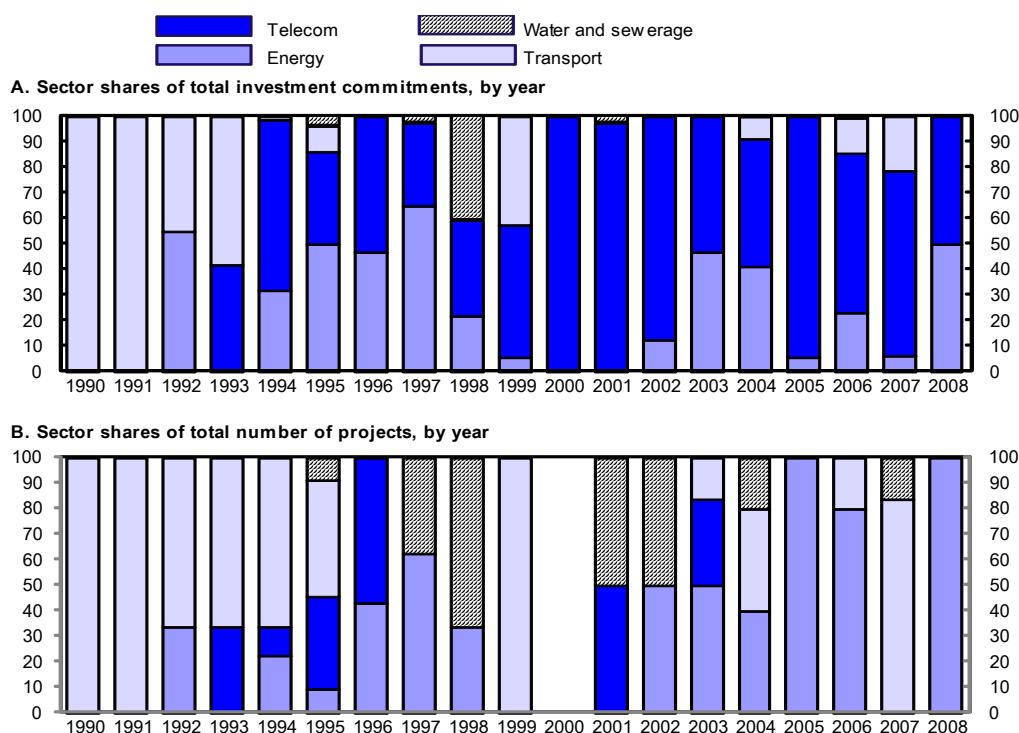
Figure 5. Value and number of PPP projects over time¹



1. Southeast Asia refers to Malaysia, Thailand, Philippines and Vietnam; Enhanced Engagement countries refer only to Brazil, China, India and South Africa.

Source: World Bank and PPIAF (PPI Project Database).

Figure 6. Sector share of total investment commitments and number of projects



Note: The yearly number of projects is based on their financial closure year. Total investment commitments refer to projects whose financial closure is the same year or before.

Source: World Bank and PPIAF (PPI Project Database).

PPPs present a number of advantages. They can potentially allow for an efficient allocation of risks to the party that is best able to manage them and draw on private project management expertise. In addition, they might allow governments to fund more infrastructure projects than traditional public capital spending allows, but this must not come at the expense of transparent fiscal accounting and a comprehensive disclosure of all fiscal risks (Box 2). However, PPPs achieve cost savings with respect to traditional public procurement methods only if their efficiency gains exceed their higher financing and transaction costs. The question on the long-run efficiency of PPPs has not been settled as, to date, insufficient research has been conducted (Hodge and Greve, 2009). PPPs's efficiency is likely to vary on case-by-case basis. A Public Private Partnership Center Unit and a Project Development Facility have been created in Indonesia, within the infrastructure inter-ministerial committee KKPPi and Bappenas respectively, as centres of technical expertise in project preparation.

The decision on which projects to finance with PPPs is fraught with difficulties. As stated in the *OECD Principles for Private Sector Participation in Infrastructure*, the choice between public and private provision should be based on cost-benefit analysis, taking into account all alternative modes of delivery, the full system of infrastructure provision, and the projected financial and non-financial costs and benefits over the project lifecycle (OECD, 2007). All risks need to be accounted for, and contingent liabilities in this respect should be included in cost-benefit analyses.

Box 2. Public Private Partnerships

A fundamental difference between PPPs and public financing is their respective budget treatment. Broadly speaking, with the former, debt is incurred by the private sector, whereas with the latter the public sector incurs it, although accounting treatments vary substantially across countries. Reviewing the use of PPP practices in eight OECD countries (Australia, France, Hungary, Korea, Portugal, the United Kingdom, the United States and Chile) Posner *et al.* (2009) note how budget pressures were the prime reason for starting to use PPPs, at least in some of the countries. PPPs, however, can sometimes be used to simply circumvent spending controls and move debts off the balance sheet. In this case, the government is likely to bear most of the project risks and face potentially large liabilities in the medium-long term. In general, PPPs should not come at the expense of transparent fiscal accounting and a comprehensive disclosure of all fiscal risks. There are not universally accepted fiscal accounting and reporting standards for PPPs. Posner *et al.* (2009) suggest some measures on how to strengthen the budgetary review and deliberation processes for PPPs. These include:

- The upfront funding should be established for all PPP commitments in the budget-making process to make policy makers aware of the full cost consequences of their decisions;
- The upfront funding for PPP commitments should compete for limited budget resources with other competing claims so as to force decision makers to compare PPP costs and benefits with other programmes;
- All PPPs should be fully recorded in the budget, even if projects are deemed to be off balance sheet;
- The process for evaluating PPPs should be strengthened by defining explicit criteria to gauge affordability and conduct value-for-money reviews;
- Limits on the total level of PPP commitments undertaken in a given year can be used to assess affordability of PPPs. Limits can be measured on the basis of total net present value of long-term costs and/or total annual payments for approved projects.
- Government guarantees should be estimated at the time commitments are authorised. Accrual-based approaches to measure guarantees should be considered. Limits on total guarantees should also be explored.
- Strengthening longer-term budget frameworks could provide a more informed basis for evaluating the long-term affordability of PPP projects. Modelling long-term fiscal outlooks is the first step. Authorities should also consider developing their near- and medium-term fiscal targets consistently with the longer-term outlook.
- Full disclosure on future payment obligations for PPPs should be provided in budget documents. The United Kingdom and Portugal are two good examples of such transparency.

Value-for-money tests are admittedly difficult, and the experience of some developed countries with them has been far from satisfactory.⁴ The international experience shows that, to be effective, value-for-money tests should be undertaken rigorously, without any bias in favour of any form of financing, and reflect the actual allocation of risks between parties. In addition, policy makers need to focus on the concept of “absolute affordability” of PPP projects. This refers to the threshold beyond which even projects offering good value for money may exceed budget constraints, thereby impairing long-term fiscal conditions (Posner *et al.*, 2009). This obviously calls for an appropriate treatment in the budget of all liabilities generated by PPPs.

4. Hellowell and Pollock (2009) report on the experience of the United Kingdom on value-for-money exercises concerning capital investment in the health sector. They stress how PPPs have come out, in virtually all instances, as the most cost-efficient saving option, as value-for-money exercises have allocated risks to private providers, which they were not contractually obliged to bear.

The current legislation on the procurement process of PPPs in infrastructure requires the government to observe due diligence and focus on fiscal sustainability. Importantly, the legislation specifies that the government will not provide any blanket guarantee and that risks will be allocated to public and private parties on a case-by-case basis. In 2006, the Ministry of Finance specified that the government can cover the following risks:

- Political risk: related to unilateral action of the government, such as expropriation of assets, amendments to legislation, prohibition of fund repatriation and restrictions on currency conversion;
- Project performance risk: this is related to delay in or increased costs of land acquisition and changes by the government in project specifications;
- Demand risk: where the realised revenue is lower than the minimum forecast revenue because of lower demand.

To manage such risks in a consistent framework, the government established the Indonesia Infrastructure Guarantee Fund (IGF) in 2009. It offers guarantees for government obligations for PPPs upon payment of a fee by the operator. It has been set up as a SOE with an initial capital of IDR 1 trillion, provided by the government, with additional capital expected to be injected by multilateral agencies and international donors. It will be commercially run with the objective of achieving an investment-grade rating. One of the main benefits of the IGF is that it will ring-fence government obligations arising from PPP projects. It will work as government's single window for appraising projects, structuring guarantees and processing claims. Moreover, IGF is expected to enhance the creditworthiness of insured infrastructure companies, thus allowing them to obtain private financing at more convenient terms. Its detailed operating procedures have yet to be established.

The government needs to pay special attention to demand-side risks, which is one form the government may guarantee. Assuming demand risks may have the advantage of creating a premium on bid prices. However, there could be a tendency to overestimate future demand to enhance the value of certain projects. This practice may impair the financial viability of the project in the long term and saddle the government with expensive compensation in the future. To diminish the likelihood of this occurrence, the government could rely on technical advisors to provide conservative and independent demand forecasts. This could limit the degree to which bidders can use overly optimistic demand assumptions in their project proposals and reduce opportunistic behaviour leading to contract renegotiation (APEC, 2009).

The lack of long-tenor local currency debt has been a major deterrent of private investment in infrastructure. Commercial banks, which are the main source of finance in Indonesia, are generally unable to provide long-term loans as a large share of their deposits has short maturity, one month or less, and lack the experience in assessing the creditworthiness of infrastructure projects. Indonesia authorities have long recognised this problem and taken steps to improve the situation. Recently, the government, in cooperation with the Asian Development Bank, the International Financial Corporation and the German Development Cooperation Agency, has set up the PT Indonesia Infrastructure Finance (IIF) with an initial equity capital of USD 60 million, plus additional USD 100 million of subordinated loans from the World Bank and Asian Development Bank each. IIF is a non-bank financial institution that will operate on a commercial basis and whose goal is to channel domestic private finance towards infrastructure projects. It will borrow from local institutional investors and banks looking for long-term placements delivering higher returns than sovereign and large corporate offerings and provide *rupiah*-denominated finance to creditworthy infrastructure projects. Its good credit rating will allow the IIF to borrow an estimated USD 2.7 billion (IDR 25 trillion) from the debt market. It will also provide advisory service to identify bankable projects and develop the infrastructure sector in general. In addition to channelling long-tenor local funds to long-term investments,

IIF may help deepen Indonesian capital markets at long maturities through the issuance of long-dated and high-quality securities, which currently there is dearth of. Local currency financing is an especially welcome development as it will eliminate the exchange rate risk.

Comparing Indonesia's regulatory framework with OECD countries

A sound regulatory framework is of utmost importance for the development of infrastructure. Infrastructure investments are typically large and long lived and, as a result, uncertainty plays a disproportionate role in firms' investment decisions. Therefore, lower regulatory uncertainty and credible policy commitments on the part of the government are likely to result in higher private investment (Box 3). These include the presence of independent regulators, appropriate price regulations, calls for tender and permission, and FDI restrictions.

Box 3. Regulatory environment and infrastructure outcomes

The theoretical and empirical literature on the relationship among infrastructure regulations, uncertainty and infrastructure outcomes is scarce. However, the available evidence broadly suggests that a sound institutional setting improves infrastructure outcomes. Esfahani and Ramirez (2003) show in a growth model how institutions that lend credibility and effectiveness to government policies (*i.e.* low risks of contract repudiation) matter for infrastructure growth. Andres *et al.* (2007) report, for Latin America, that regulatory structure, framework and quality matter for aligning costs and tariffs, dissuading renegotiations, and improving productivity, quality of service, coverage, and tariffs. Henisz (2002), using a two-century-long panel dataset, shows that regulatory settings limiting abrupt policy changes, thereby reducing regulatory uncertainty, explain cross-national variation in the initial year of infrastructure adoption and infrastructure's subsequent rate of growth. Henisz and Zelner (2001) report that variation in the checks and balances on executive discretion, which arguably lead to credible policy commitments, explains the rates of basic telecommunications infrastructure across countries from 1960 to 1994. Serven (1997), employing a large cross-country time-series dataset of African countries, finds a negative association between investment performance and instability measures and concludes that uncertainty is an important factor explaining Africa's poor investment record. Keefer (1996) maintains that the high construction profits earned on Spanish railroads in the mid-nineteenth century arose as a consequence of poor credibility by the part of the State. The risk of government intervention was a strong incentive for investors to secure high rates of return in the construction process.

This section relies on information collected through an Infrastructure Investment Questionnaire sent to OECD national authorities in winter 2008 (Égert *et al.*, 2009). The same questionnaire was sent to Indonesian authorities in autumn 2009. The information contained in the questionnaire needs to be interpreted with caution. Whereas it is likely to capture the *de jure* regulatory framework, it says little as regards the *de facto* situation. Stern (2007) underlines that what shapes the actual regulatory environment are the decisions of authorities, which in turn may or not discourage private investors. In addition, infrastructure regulation is complex since it has repercussion on several domains, such as pricing, service quality and environmental impact. Several OECD countries have adopted some form of regulatory impact analysis, to evaluate the effects and trade-offs of infrastructure regulation, although their full implementation can be administratively and technically challenging (OECD, 2009).

Sectoral regulator

The drive of the government to enhance the regulatory framework for infrastructure is evident from the "Infrastructure Policy Package" issued in 2006. The main objectives were to increase competition, eliminate discriminatory practices and unbundle the government's roles as policy-maker, regulator and service provider. Based on these principles, successive Indonesian governments have established a number of regulatory authorities, but not in all infrastructure sectors (Table 2). In particular, there is no independent authority regulating electricity, water supply and railway transport. This is in contrast with the vast majority of OECD countries, where regulatory authorities are more widespread (Box 4). In Indonesia,

authorities for road, water and air transport are not independent from the executive branch of government (Table 3). This differs from OECD countries, where regulatory agencies are more often than not independent from the government.

Indonesian regulatory authorities depend on the government or line minister and have a purely advisory role. This arrangement can be reasonably considered as a first step when reforming the institutional environment in order to give regulatory entities some time to gain expertise, credibility and authority and minimise the chance of regulatory capture by the private sector, but the time is now ripe to give them more autonomy.

Table 2. Presence of at the least one regulatory authority

	Indonesia	OECD countries ¹
Electricity	No	96%
Gas	Yes	96%
Water supply	No	84%
Railway transportation	No	92%
Road transportation	Yes	68%
Water transportation	Yes	76%
Air transportation	Yes	92%
Telecommunications	Yes	100%

1. Percentage of OECD countries that replied positively to the questionnaire (25 countries).

Source: OECD Infrastructure Questionnaire.

Box 4. The establishment of regulatory authorities

The most remarkable change in the infrastructure regulatory framework over the last 15 years has been the establishment of regulatory authorities in both developed and developing countries. More than 200 infrastructure regulatory entities have been created, not all of them autonomous from the government (Stern, 2007). Independence from the executive has generally come to be seen as an important requirement of effective regulatory entities, although not the only one. According to Melody (1997) independence means autonomy to execute policy and verifying its compliance without obstruction and undue interference from politicians or industry operators. This involves building the necessary skills to make impartial and informed decisions to achieve the stated policy objectives and to be accountable. Other characteristics as legitimacy and credibility are important elements of effective regulatory entities. Cubbin and Stern (2006) find, in a sample of developing countries, that even non-independent regulatory authorities established by a regulatory law, rather than government decrees, are associated with around 15-20% higher electricity generation capacity in the long term.

Recent trends suggest the number of independent regulatory authorities has been growing both in developed and developing countries. The independent regulatory agency model has become the standard recommended solution to the private investment problem in infrastructure sectors just as it is a way to handle commitment and time-inconsistency problems in monetary policy (Levine *et al.*, 2003). Estache and Goicoechea (2005) report that by 2004 around 64% of LDCs had established some kind of independent regulatory agency in telecommunications, 56% in electricity and 21% in water. Growing empirical evidence supports the hypothesis that higher-quality governance elements usually associated with independent regulators result in better industry performance. Cubbin and Stern (2006) – studying the reforms of the electricity sector in 28 developing economies from 1980 to 2001 – report that higher-quality regulatory framework is associated with 25-35% long-term increase in per-capita generation capacity. Gutierrez (2003) constructs an index of regulatory governance for telecommunications, in a sample of Latin American and Caribbean countries from 1980 to 1997, capturing the presence of a separate regulatory authority and its roles. He finds that a one percentage point increase in the index raises fixed mainlines per 100 inhabitants by about 20%. Also, the sequencing of regulatory reform appears to matter. Wallsten (2002) finds that establishing separate regulatory authorities prior to privatisation results in higher telecommunications investment, fixed telephone and cellular penetration. Moreover, investors are willing to pay higher prices for telecommunications firms in countries already having a regulatory body. This is consistent with the hypothesis that investors require a risk premium to invest, where regulatory rules remain unclear.

Table 3. Independence of the regulatory authority

	Does the regulatory authority receive instructions from the executive?		Can the executive overturn the decisions of the regulatory authority?	
	Indonesia	OECD ¹	Indonesia	OECD ¹
Operation of road infrastructure	Yes	44%	Yes	44%
Operation of air transport infrastructure	Yes	48%	Yes	44%
Operation of water transport infrastructure	Yes	40%	Yes	36%

1. Percentage of OECD countries that replied positively to the question (25 countries).

Source: OECD Infrastructure Questionnaire.

In reforming its institutions in the infrastructure sector, Indonesia should establish effective regulatory authorities in sectors where they do not exist such as water supply and railway transportation. In addition, existing regulatory entities should be granted more independence, while carefully further enhancing the expertise they have gained thus far. Independent and effective regulatory authorities would lead to the separation of the dual role the government still plays in many infrastructure sectors as regulator and service provider through SOEs. This is consistent with the *OECD Guidelines on Corporate Governance of State-owned Enterprises*, that call for a clear distinction between the State's ownership function and other functions affecting service providers, especially with regard to market regulation (OECD, 2005).

Financial independence would be one way to give regulatory entities more leeway in some circumstances and soften short-term political pressures. This could be done by funding all or a substantial share of regulators' budgets with licence fees or other levies linked to service-provider turnover and using budget appropriations only in case these funds are insufficient. Specifically, the levy should be set out in law and can be seen as fees for regulatory services rather than taxes (Brown *et al.*, 2006). The government budget could fund regulatory entities only when they are asked to undertake specific tasks beyond their pre-specified responsibilities and for an initial period after their establishment.

Employing independent selection criteria to hire regulators based on merit and qualification alone would also go some way towards granting more autonomy to regulatory bodies besides strengthening their expertise. This implies moving away from the requirement to staff regulatory institutions with civil servants or employees of a particular ministry.

Indonesia authorities could confer more powers on regulators. In addition to be dependent on the government, Indonesian regulatory authorities have a very limited role when compared with the same kind of institutions in OECD countries (Table 4). In OECD countries, regulatory authorities are more likely to be responsible for implementing regulations, verifying compliance, and applying fines and sanctions, rather than designing specific rules. There is evidence that the power of regulatory authorities in overseeing contracts, by implementing regulations and verifying compliance, may lower the likelihood of firm- and government-led renegotiation (Guasch *et al.*, 2003 and 2007). Early negotiations might indicate opportunistic behaviour by the new operators during the bidding process (through strategic underbidding) and after it (by successfully withholding critical information from the government in order to obtain a more advantageous distribution of rents).

The counterpart of strengthening regulatory bodies' independence and powers is to raise their public accountability by putting in place a system of checks and balances along with increasing transparency (Majone, 2006). Arguably, striking a balance between independence and accountability is difficult. Some measures have already been put in place in some sectors, as the publishing of annual reports and creation of forums where stakeholders can submit their views on issues under the purview of regulatory authorities

(as in telecommunications). Public accountability could be further strengthened by allowing agencies' decisions to be reviewed by the courts or other non-political bodies when necessary, evaluating regulatory agencies at regular intervals by independent auditors or legislative committees, and establishing written procedures on how to remove regulators who act inappropriately.

Entrenching the regulatory authorities' general responsibilities in law, rather than ministerial decrees, could also reduce investors' perceived regulatory uncertainty. A ministerial decree is not a strong enough legal instrument to establish a regulatory agency, since it can be revoked or amended by the government ministry alone, without any consultation with parliament (Latifulhayat, 2008). In Indonesia there have been successful precedents in establishing effective regulatory bodies or independent commissions based on laws, such as the Indonesia Broadcasting Commission and the Indonesia Commission for Unfair Competition.

Table 4. Powers of regulatory authorities in infrastructure industries

	Design specific rules for the sector		Implement regulations and verify compliance		Power to apply fines and sanctions	
	Indonesia	OECD ¹	Indonesia	OECD ¹	Indonesia	OECD ¹
Electricity, consisting of:						
electricity generation	No	64%	No	68%	No	68%
electricity transmission	No	84%	No	92%	No	92%
electricity distribution and supply	No	88%	No	92%	No	92%
Gas, consisting of						
gas production	No	28%	No	36%	No	36%
gas transmission	No	84%	No	92%	No	92%
gas distribution and supply	No	88%	No	92%	No	92%
Water collection, purification and distribution	No	40%	No	44%	No	44%
Railway transportation						
passenger transport	No	40%	No	52%	No	52%
freight transport	No	40%	No	48%	No	48%
operation of railroad infrastructure	No	36%	No	56%	No	56%
Operation of road infrastructure	No	44%	Yes	44%	No	44%
Operation of water transport infrastructure	No	44%	No	48%	No	48%
Air transportation, consisting of:						
air transport	No	44%	No	48%	No	48%
operation of air transport infrastructure	No	48%	No	48%	No	48%
Telecommunications, consisting of:						
fixed-line network	No	80%	No	96%	No	96%
fixed-line services	No	80%	No	96%	No	96%
mobile services	No	80%	No	96%	No	96%
internet services	No	76%	No	88%	No	88%

1. Percentage of OECD countries whose regulatory authorities are responsible for the specific issue (25 countries).

Source: OECD Infrastructure Questionnaire.

Price regulation

Price regulation of infrastructure services is an important policy instrument.⁵ It affects the extent to which operators can recover their costs, make additional investment and adopt cost-saving technologies.

5. Price regulation is common in network industries because of the existence of natural monopoly, the presence of positive externalities generated through widespread access to the network, and the high political and social sensitivity of some sectors. Regulating prices is also a necessity when the core monopoly network provider must ensure access to it for different service operators under payment of an

Price regulation in infrastructure sectors can be broadly classified into two categories: rate-of-return regulation (or cost-based pricing) and price caps (or incentive-based pricing). In the rate-of-return regulation regime prices are set to cover production costs and allow a pre-determined rate of return to the capital invested. Its main drawback is that investors have incentives to overinvest and no reward from eliminating inefficiencies or adopt cost-saving technologies. By contrast, price-cap regulation simulates competitive conditions and offers strong incentives to adopt cost-saving technology and increase efficiency, but they have also be found to lead more often than cost-based pricing to contract renegotiation (Guasch *et al.*, 2003 and 2007). Incentive-based price regulation, such as price or revenue caps, if associated with independent regulators, has been found to boost infrastructure investment in OECD countries (Égert, 2009).

Determining the optimal price regulation regime for each sector is challenging. One size fits all measure is unlikely to be successful as the best pricing scheme depends on industry characteristics. However, both types of price regulation require effective and powerful regulatory authorities to monitor operators' behaviour and performance, and determine tariff increases. In this sense, the need to establish effective and independent regulatory entities is all the more compelling.

Indonesia differs from OECD countries as prices are regulated, at least partially, in all infrastructure sectors, except for the operation of road infrastructure (Table 5). Firms set tariffs following government's guidelines. In addition, these tariffs mainly ensure a pre-determined rate of return or based on other cost-based regulation (*i.e.* a mark-up over costs). Only in telecoms, more specifically in fixed-line network and fixed-line services, are pure price caps used.

Table 5. Degree of price regulation in infrastructure industries

	Indonesia	Are prices regulated?		
		OECD ¹		
		Yes, for all prices	Partially	No
Electricity, consisting of:				
electricity generation	Partially	0%	20%	64%
electricity transmission	Yes, for all prices	80%	12%	4%
electricity distribution and supply	Yes, for all prices	28%	68%	4%
Gas, consisting of:				
gas production	Partially	0%	8%	48%
gas transmission	Partially	68%	16%	4%
gas distribution and supply	Partially	36%	56%	4%
Water collection, purification and distribution	Yes, for all prices	32%	32%	12%
Operation of railroad infrastructure	Partially	32%	32%	12%
Operation of road infrastructure	No	32%	12%	16%
Operation of water transport infrastructure	Yes, for all prices	8%	20%	44%
Operation of air transport infrastructure	Yes, for all prices	8%	52%	16%
Telecommunications, consisting of:				
fixed-line network	Yes, for all prices	12%	68%	16%
fixed-line services	Yes, for all prices	0%	76%	20%
mobile services	Partially	0%	64%	20%
internet services	Partially	0%	24%	40%

1. Percentage of OECD countries that replied to the questionnaire (25 countries). Percentages may sum to less than 100 because of non responses.

Source: OECD Infrastructure Questionnaire.

access fee – as in the electricity transmission network – or when only competition for the market is feasible – as in concessions for toll roads or water supply.

Permissions and calls for tender

An important issue for attracting private investment is whether permissions (such as planning permits, environmental licensing and local authorities' operating licences) are obtained before calls for tender are made. This bears particularly on the possibility of delays and ensuing cost overruns besides helping diminish uncertainty. Indonesia appears to be following best practice of obtaining this authorisation before calls for tender are made along with the majority of OECD respondents (Table 6). However, these responses need to be put in perspective. The lack of effective and expeditious land expropriation procedures has been the main obstacle to the development of toll roads. Thus, although the formal requirement of obtaining permissions and authorisations may already be in place, the lack of rule-enforcing procedures and administrative delays may hinder the development of infrastructure projects considerably.

Table 6. **Investment planning**

	Indonesia	OECD ¹
Does the contractor (a public body) usually obtain planning permission before calls for tender are made?	Yes	56%
As a principle, is environmental licensing obtained by the public body before calls for tender are made?	Yes	44%
If applicable, are local authorities' licenses obtained by the public body before calls for tender are made?	Yes	76%

1. Percentage of OECD countries that replied positively to the questionnaire (25 countries).

Source: OECD Infrastructure Questionnaire.

FDI restrictions

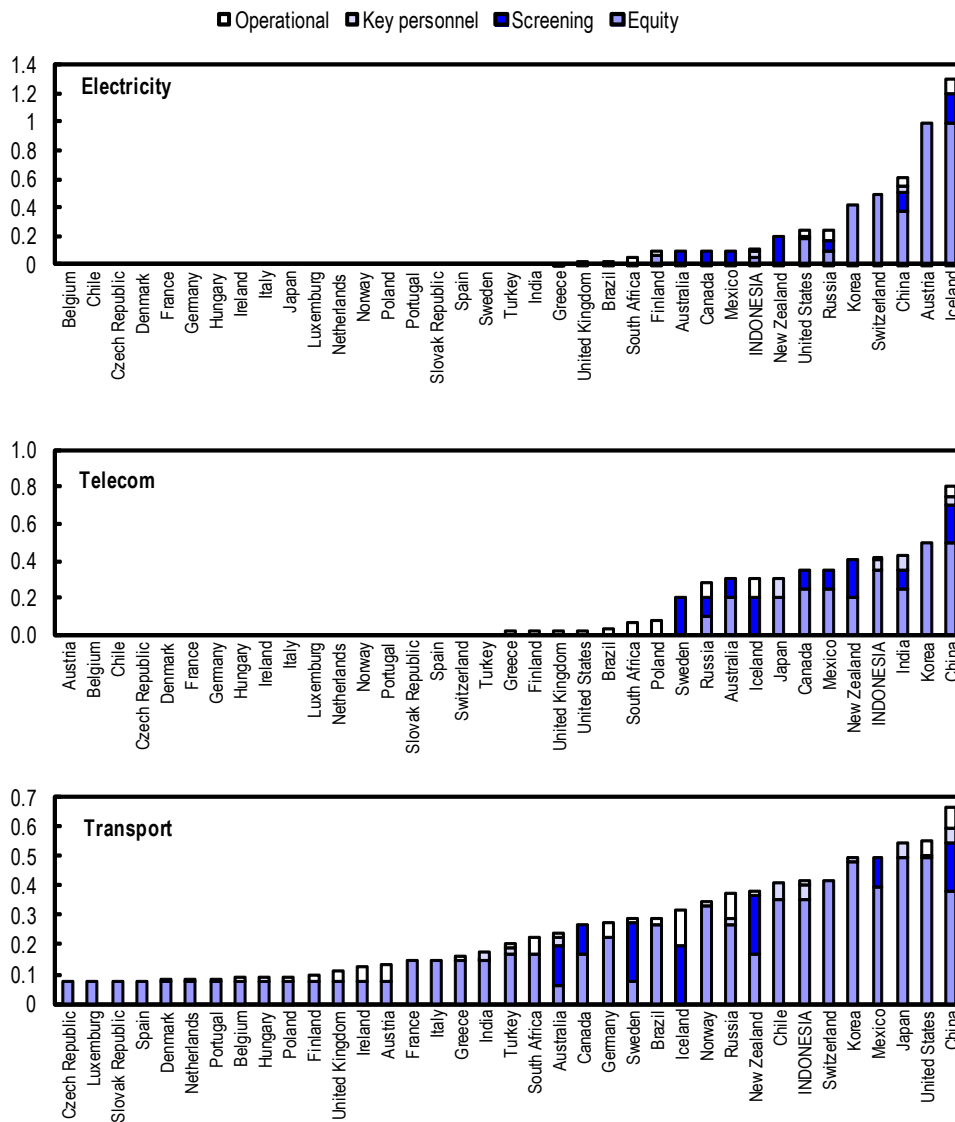
FDI legislation is an important factor behind the capacity of a country to attract private sector funding for PPPs and improve know-how through technological transfer. Foreign private investors may offer the financial resources and have the expertise to invest successfully in infrastructure. Despite renewed efforts to soften FDI barriers through the publication of a negative investment list, Indonesia's FDI regime remains quite restrictive by international comparison (Kalinova *et al.*, 2010).⁶ Among infrastructure sectors, electricity is characterised by mild FDI regulatory impediments compared to transport and telecommunications. In these three sectors, among the five OECD's Enhanced Engagement countries, only China has more restrictive FDI regimes than Indonesia along with India in telecommunications (Figure 7).

Given their high level, there is scope to lower FDI restrictions in infrastructure, especially on foreign equity ownership in telecommunications and transport and, to a lesser extent, in electricity. Also impediments on equity acquisition could be lowered in electricity. Moreover, there is room to reduce regulatory impediments on foreign key personnel in these three sectors so as to facilitate the recruitment of directors and managers with the competences and skills necessary to improve the operations of infrastructure services. Besides providing additional capital injection, increasing foreign participation in

6. The FDI index is computed considering restrictions in four areas: *i*) foreign equity restrictions; *ii*) screening and prior-approval requirements; *iii*) rules for key personnel, such as executives; and *iv*) other restrictions on the operation of foreign enterprises. The highest score in any area is one, when it fully restricts foreign investment in the sector, whereas the lowest is zero, in case there are no regulatory impediments to FDI. The overall score for each sector is computed by summing the scores for the different types of restrictions (OECD, 2010). No attempt is made to appraise the overall restrictiveness of the regulatory regime as it is actually implemented.

infrastructure sectors has the potential to improve local know-how and raise the degree of competition, thereby accelerating the development of local infrastructure enterprises.

Figure 7. FDI legislation in selected infrastructure sectors, 2009¹



1. The indicator for each area (i.e. operational, screening, key personnel, screening and equity) ranges between 0 and 1. A higher score indicates more stringent FDI restrictions.

Source: Kalinova et al. (2010).

Selected infrastructure sectors

Electricity

The electricity sector is dominated by the state-owned company *Perusahaan Listrik Negara* (PLN). Historically, tariffs have been uniform across the country, and large consumers (mostly enterprises) have subsidised households. Because of this, PLN has had to manage a large cross-subsidy programme across

regions and consumers. As a result of its impaired financial status, PLN has been unable to fund new investment, expand electrification in rural areas and sometimes even to conduct standard maintenance.

A large share of households does not have electricity connection, especially among the poor. However, the gap between the lowest and highest income quintiles, in terms of electricity supplied by PLN, narrowed sharply from 2005 to 2008 (Table 7). The government aims at increasing the electrification rate to 80% by 2014 and 90% by 2020. To achieve these targets the government has issued two 10 000 MW fast-track programmes, the first to be completed in 2013 and the second in 2015. The programmes also aim at increasing substantially the share of electricity produced from coal and gas, instead of oil, so as to reduce generation costs. To raise private investment in the electricity sector the government has eliminated import duties on equipment needed to build power plants in the second phase of its fast-track programme.

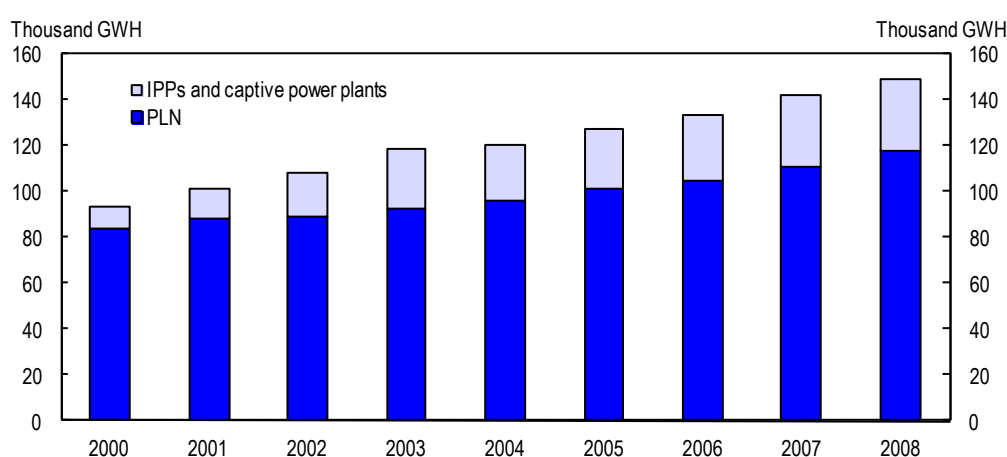
Independent power producers (IPPs) and captive power plants, which are electricity generating plants not connected to the grid and used solely for the production needs of the owner, produce a considerable and rising share of electricity in Indonesia (Figure 8). To date, IPPs have an installed capacity of about 5 000 MW against around 25 000 MW for PLN (PLN, 2009; Purra, 2010) and PLN maintains a monopoly in electricity sale, distribution and transmission. Estimates of installed capacity of captive power plants vary, but it appears to be substantial (World Bank, 2004; IEA, 2008).

Table 7. Sources of light by income levels, 2008

	Lowest quintile	2 nd quintile	3 rd quintile	4 th quintile	Highest quintile	Difference: Highest – Lowest	
						2008	2005
Electricity supplied by PLN	70.8	76.8	80.5	84.2	89.9	19.1	47.8
Torch	21.5	14.9	10.6	6.1	2.0	-19.5	-41.0
Other	7.8	8.3	8.9	9.8	8.1	0.4	-6.8

Source: Susenas and OECD calculations.

Figure 8. Private and captive power plant production



Source: Ministry of Energy and Mineral Resources.

The main obstacle to further private participation in electricity generation relates to the electricity price PLN charges to final consumers, which is set by the government at well below cost-recovery levels.

This arrangement has made further private investment in electricity generation unprofitable and in some cases investment projects have been halted. From 2004 to 2009, PLN signed 45 new power purchase agreements with IPPs, but only 17 of them have reached the completion stage (PLN, 2009).

Electricity subsidies are at the core of reforming the sector, improving PLN finances and attracting private investment. The first objective should be to phase out electricity subsidies by increasing tariffs (Mourougane, 2010). The resulting savings could be used to provide targeted income support to low-income families or extend network coverage. Higher electricity coverage will generate benefits in terms of public health and educational outcomes. The recent government decisions to eliminate import duties on equipment needed to build power plants in the second phase of its fast-track electricity generating programme is a positive development but is unlikely to offer enough incentives to attract private investors, without reforming electricity subsidies.

In September 2009, the parliament approved a new electricity bill, which should come into force in 2010. The new law aims at increasing the role of private participation in electricity generation, transmission and distribution without violating the provisions of Article 33 of the Constitution.⁷ IPPs are permitted not only to build and operate new generating stations, but also to establish their transmission network and sell electricity directly to final consumers. In addition, it is possible to charge different electricity tariffs across regions and customers. This goes in the direction of better aligning final prices with user costs and making electricity subsidies more selective. However, the law falls short of establishing a sectoral regulatory authority and states that the government must provide the guidelines for determining electricity tariffs for the retail market. More specifically, the new law specifies that retail electricity prices and tariffs to access others' electricity grid must be based on "sound business principles" (meaning transparency, accountability and fairness) and approved by central or local government. Further details on how to set retail power prices and grid rental tariffs will be specified in implementing regulations, which are yet to be issued. Overall, the guiding principle to set grid rental tariffs should be to minimise uncertainty and ensure cost recovery to spur investment in the sector so as to increase transmission and distribution capacity, reduce transmission losses and frequent blackouts.

Importantly, the new law recognises the role captive power plants might play in the electrification process. It states that they can be owned and operated by both state-owned and private enterprises, but it does not make any provision concerning their connection to the electricity grid to integrate them into the market. The government needs to develop a clear strategy for integrating captive power plants into the grid. A first step could involve developing an inventory of all captive power plants to gauge their installed capacity and characteristics. When feasible, their integration into the electricity grid will help accelerate electrification in rural areas.

Although the new legal system allows for private participation in the generation, transmission, distribution and sale of electricity, it also makes provision for a preferential treatment of the state-owned enterprise, stating it must be given "priority" with respect to IPPs in the electricity-supply business. Overall, it is yet unclear how the new law will affect the electricity market's structure. PLN is likely to maintain its dominant position as the new law does not contain any provision to unbundle its operations.

To extend electrification in rural areas, a coherent plan should be developed involving the auction of subsidies, similar to what the government has already started in telecommunications. The entry of additional firms in electricity generation, transmission and distribution, as the new law allows, will

7. Article 33 requires the State to control: *i*) all branches of production that are important for the State; and *ii*) all natural resources. In 2004, the Constitutional Court declared unconstitutional a 2002 law attempting to reform the electricity sector by increasing private participation and creating a regulatory body. A labour union of PLN has challenged the validity of the new law before the Constitutional Court.

increase competition in the electricity sector and may allow the government to start auctioning rural electrification subsidies competitively, instead of allocating them to a single company. The experience of Chile in this sense is encouraging (Box 5).

Box 5. Rural electrification programme in Chile

Chile is one interesting example of a successful rural electrification programme implemented through an innovative subsidy scheme. Traditionally, in Chile state-owned power companies had the responsibility for delivering centrally developed rural electrification plans relying on subsidies provided by the government or cross-subsidies. By early 1990s more than 50% of the rural population had still no access to electricity. According to data of the National Energy Commission (CNE), the rural electrification programme, launched in 1994 (*Programa Nacional de Electrificación Rural*) increased the rural electrification rate to 76% by 2000 and to 93% by 2007, not far from 2010 government target of 96%. The programme aims at attracting private participation into rural electrification through subsidies. It involves allocating a one-time direct subsidy to private electricity distribution companies, through an annual auction, to cover part of their investment costs. It is based on the following principles:

- **Decentralised decision-making.** The programme is essentially designed as demand-driven to ensure local participation and commitment. Local communities without electricity can propose to the municipality an electrification project supported by local distribution companies interested in investing in the project. A technical unit within the regional government then evaluates the projects. The final decision on which projects to finance is taken by the regional council according to pre-specified criteria. The central government provides economic and technical assistance through the CNE to coordinate the institutions involved in the programme. The programme allows only for projects with at least a 10% real rate of return on investment over 30 years.
- **Cost sharing.** The responsibility for financing the electrification projects is shared among users, distribution companies and the State. Users have to cover the costs of in-house wiring, the electricity meter and the connection to the grid. These expenditures can be substantial. To help poorer households to participate, these costs are initially financed by the electricity distribution company and repaid by users over time. The distribution company sponsoring the electrification project is required to invest a certain amount determined using a formula set by the government. The State provides subsidies to cover part of private distribution company investment costs.
- **Appropriate technologies.** Different electricity distribution schemes are considered. The preferred choice must abide by certain technical standards and ensure electricity supply for 24 hours per day. However, if this option proves to be too expensive for some areas, alternatives can be considered.
- **Competition.** To minimise costs and decrease the risk of politicisation competitive pressures were introduced at different levels: among communities, for financing projects; among distribution companies, for implementation; among regions, for subsidies provided by the central government; and among technologies.

At the completion of the project, distribution companies are responsible for managing and maintaining it and can recover operating costs by charging users the electricity tariffs set by CNE. Private participation has been key for implementing the programme. Given the absence of exclusive distribution rights, existing distribution companies have participated in the programme strategically to deter entry by competitors.

Source: Jadresic (2000a and 2000b) and CNE (2010).

Water and sanitation services

Water and sanitation is probably the infrastructure sector in Indonesia where reforms are the most needed. Like in other countries, policy responsibilities are fragmented between different ministries and local governments. The responsibility for planning, development and provision of water and sanitation services falls upon regency (*kabupaten*) and city (*kota*) governments, whereas the role of provincial

governments is limited to co-ordinating functions spanning the boundaries of different districts along with mandates over inter-city activities and disputes (Water and Sanitation Programme, 2006; World Bank, 2004). Water tariffs are highly politicised. They must be approved by local parliaments, with the Ministry of Home Affairs providing guidelines on how to set them. As a result, water prices are generally well below cost-recovery levels.

Access to piped water remains low, particularly in rural areas. Private participation in the water sector is rare. The most notable example concerns Jakarta where two private foreign companies with local partners signed concession agreements in 1997 for a 25-year period (see Box 6). Whereas investment has not increased as expected, the concessions have at least raised the transparency and efficiency level of the water sector in Jakarta (Figure 9). After 1998, when the concession agreements started, water supply in Jakarta experienced significant efficiency gains when compared with other provinces, although not all expected gains in terms of service coverage and quality have materialised.

Box 6. The experience of private-sector participation in the water sector in Jakarta

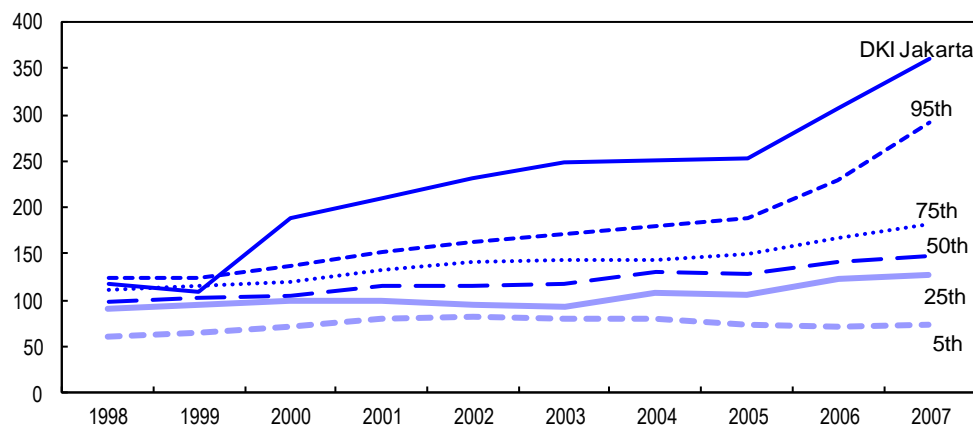
In 1995 President Suharto instructed the Ministry of Public Works to consider the privatisation of the water-supply sector in Jakarta. At that time, only 41% of households in Jakarta had access to the system; non-revenue water was 57% of the total; water was of low quality; and supply was intermittent. Because of its dire financial condition, Jakarta Water Supply Company (PAM JAYA) could not obtain loans from banks to expand services and improve quality. Through an unsolicited review process two foreign private companies, Thames Water International from the United Kingdom and la Lyonnaise des Eaux from France, with two local partners Kati and GDS respectively, were selected to sign cooperation agreements, which became effective in early 1998. Jakarta was divided in two parts, east and west, following the natural boundary of the Ciliwung River. The two concessionaires had responsibility for investment, management and operation of one part of the network for a 25-year period. The Asian crisis put the co-operation agreements under severe strain and led to renegotiation in October 2001. The main reasons to renegotiate the contracts were: *i*) the devaluation of the *rupiah*; *ii*) the freeze of retail water tariffs until 2001 to protect the poor; and *iii*) the unclear status of 50% of PAM JAYA employees who were transferred to the payroll of the concessionaires.

One of the major changes of the restated cooperation agreements concerned the introduction of the Jakarta Water Supply Regulatory Body (JWSRB). At the beginning of its operation, JWSRB had a minimal set of responsibilities, focusing mainly on dispute resolution and technical issues. This was probably the best choice at that time, since JWSRB needed some time to build the necessary expertise and credibility and establish its authority. Although government regulations state that JWSRB is an independent body, on some important issues, such as tariffs, it has purely an advisory role since they have to be approved by the Governor of Jakarta province.

After ten years, the assessment of the water privatisation experience in Jakarta is mixed. Indicators suggest that water service has improved, but not all the expected gains in terms of service coverage and quality have materialised. Average tariffs are higher in Jakarta (USD 0.7 per m³ in 2005) than in other Southeast Asian cities, such as Bangkok (0.29), Manila (0.35), Kuala Lumpur (0.22) and Singapore (0.55) and much higher than in the rest of Indonesia. Whereas this obviously presents a social challenge that needs to be addressed, it also signals a more sustainable water-pricing policy than in the rest of the country. Non-revenue water decreased from 61% in 1998 to around 50% in 2008, although it made virtually no progress from 2005 to 2008, against a 2008 target of 41.7%. Coverage increased from 46% at the beginning of the concession period to 64% in 2008, slightly below that year's target of 68%.

JWSRB has gained experience over time, and its relationship with the government has evolved. For its first three-year term (2001-04), its members were selected by the Governor of Jakarta province. However, in 2005 a new regulation made the selection process of board members more open and accountable. JWSRB still suffers from weak legitimacy because it was established through a Governor Regulation, which was supposed to be a temporary measure until local or national legislation was issued, which has yet to happen. Accountability towards all stakeholders has improved, by means of, for instance, a consumer communication forum through which complaints can be addressed. JWSRB has built expertise and credibility, but it still needs to resist tendencies to staff itself exclusively with ex-PDAM employees. A database containing detailed technical information on the operation of concessionaires has yet to be set up. This would greatly help the work of JWSRB to assess the performance of and obstacles facing concessionaires.

Source: Lanti (2006) and Lanti *et al.* (2009).

Figure 9. Distribution of productivity levels of water-supply establishments across provinces¹

1. The lines correspond to different percentiles of the productivity distribution across provinces. Productivity is computed as the number of water-supply establishments' connections over their number of workers in each province. Figures are 2-year averages. The province of Bangka Belitung, Kep Riau, Banten, Sulawesi Barat, Gorontalo, Maluku Utara and Papua Barat are excluded because of missing data for some years.

Source: BPS and OECD calculations.

To date, the most common form of water supply involves self-provision (de Mello, 2010). This consists of household- and community-based water-supply systems, relying on wells, pumps and storage tanks. Community-based systems have traditionally been the mainstay form of water supply in rural areas. These have been established by communities themselves or built with support from national and international donors. However, national and international experience has shown that supply-driven projects that did not involve local communities in the planning and managing of the system often failed because of a lack of participation by local residents. As a consequence, a new generation of demand-driven community-based systems has been built with some encouraging results (Gatti, 2007).

Sanitation and wastewater treatment are marred by even more acute problems than the water-supply sector. The legal framework provides general statements about the importance of achieving good health and sanitation conditions and recognises the citizenry's right to a clean and healthy environment, but lacks specific provisions for the effective governance and supply of sanitation services. The current legal setting *de facto* treats sanitation as a private responsibility (World Bank, 2004; Robinson, 2008). Although local authorities are responsible for the provision of sanitation services, this does not imply they have the obligation to undertake the delivery of these services or have the capacity to do so. Therefore, public finance devoted to sanitation remains limited, and households and developers are expected to invest in on-site facilities. The vast majority of the population relies on such facilities as septic tanks and pit latrines, while many low-income households rely on polluted drains and urban waterways. Formal sewerage systems have been constructed in selected areas of a few large cities, but most are underutilised and underfunded.

The Water Resources Law 7/2004 introduced important changes to the water-supply legal framework. These include: *i*) ending public monopolies by clarifying the role of private-sector participation in the water sector; *ii*) eliminating the need for local parliament approval of water-tariff increases in case of cooperation contracts with the private sector; and *iii*) making provisions for the establishment of the

National Water Regulatory Agency (NWRA) to implement regulations and monitor service delivery norms. The law also clarifies the roles and responsibilities of regional governments.

The law has been challenged before the Constitutional Court on the ground that the constitution requires the water sector to be totally under State control. The Court asserted the law to be only conditionally constitutional, meaning that its constitutionality depends on how it is interpreted and applied through implementing regulation (Al’Afghani, 2006). This has particular importance for the determination of water tariffs. The law is vague in this respect, simply stating that drinking water must be provided at an “affordable price” and achieving a balance between the consumer and service provider.

Water tariffs need to be raised in most jurisdictions to cost-recovery levels so as to encourage investment in the sector. Poor households would be protected from the attendant rise through existing cash transfers schemes. Moreover, a coherent national policy for network connection subsidies should be developed to extend access, especially among the poor as the connection fee might be prohibitively expensive for them. Higher tariffs, in addition to leading to a more efficient use of water resources, may make increasing the number of connections financially viable. Retail water tariffs should also reflect wastewater treatment costs.

Decentralisation has not translated into service improvements in the water-supply sector. Local government owned water utilities – *Perusahaan Daerah Air Minum* (PDAM) – which are responsible for the financing and provision of water supply, remain seriously underfunded. The precarious economic condition of most PDAMs has resulted in debt obligations to the central government amounting to around USD 600 million. The government has started a programme guaranteeing long-term bank loans to PDAMs at subsidised rates so as to increase investment in the sector. These loans are conditional on PDAMs restructuring their operations to be competently managed and raising average tariffs to, at least, average unit costs for the whole period of the guarantee.⁸

One of the main issues hindering investment in the water sector is the large arrears of PDAMs with the central government. To rectify this situation, the Ministry of Finance should accelerate the programme of debt restructuring and forgiveness it has already started, thus allowing PDAMs to access long-term financing. As at May 2010, only 15 PDAMs, out of the 175 in need, have restructured their debt obligations under the *aegis* of the Ministry of Finance (PERPAMSI, 2010). The recent government’s initiative to offer partial loan guarantees and interest rate subsidies to PDAMs conditional on making their operations financial viable in the long term is commendable and needs to be continued. To increase efficiency in the water sector, merging the smallest PDAMs would allow them to increase the average number of connections and thus benefit from scale economies. In addition, this could help rationalise operations through defining service areas based on watersheds and not just jurisdictional boundaries.

Many PDAMs are small and cannot benefit from economies of scale. The average number of connections is about 20 230. Only around 8% of them serve more than 50 000 households whereas 79% count less than 20 000 (PERPAMSI, 2010). Their level of efficiency is in general low. They are overstaffed, and non-revenue water in many cases exceeds 50% (Godman, 2005). Service areas are determined by regency and city boundaries and not by watershed boundaries, resulting in additional operational inefficiencies. Merging the smallest PDAMs would allow them to increase their average number of connections and thus benefit from scale economies. In addition, this could help rationalise operations through defining service areas based on watersheds and not just jurisdictional boundaries. In 2004 the national association of water utilities (PERPAMSI) started a water-utility benchmarking programme with the intent to disseminate international and local best practices. The Indonesian authorities

8. According to Presidential Decree 29/2009, the guarantee covers 70% of the subsidised loan (40% by the central government and 30% by the local government).

should focus on strengthening this programme so as to extend the benchmarking exercise and make its results widely available. An initial assessment of benchmarking in different countries suggests that it increases competition, helps disseminate best practices, improves efficiency and reduces non-revenue water (Cabrera, 2008). In addition, it could be used as a jumping board towards formally introducing yardstick competition in the water and sanitation sector.

To overcome long-term financing obstacles in the water and sanitation sector, the creation of revolving funds, managed by provinces, could be considered. These funds could help finance water and sanitation projects through pooling project risks within provinces and the provision of credit enhancement from the central government (Box 7). Entrusting provinces with the responsibility of managing these funds would also go some way towards granting them greater powers to co-ordinate water and sanitation projects among districts. The establishment of such funds should be preceded by an assessment of provincial governments' capacity to manage. Overall provincial governments should also strengthen their capacity in water and sanitation development, including planning capacity as well as coordination between inter-government offices (*Dinas*), governments and communities. The working group on water supply and sanitation (*Pokja AMPL*) that has been established throughout local governments in Indonesia, both at provincial and district/city levels, should be deployed as a means to connect stakeholders and achieve a better sector-development planning and coordination.

Box 7. State revolving funds: The US experience

The US federal government established the clean water and drinking water state revolving funds (CWSRF and DWSRF) in the mid-1980s, in connection with the federal Clean Water Act. These programmes aim at reducing wastewater and drinking water supply project costs by providing below-market rate loans for water-treatment and drinking-water projects. Today state revolving funds (SRFs) are recognised as a critical source of funding to enable communities to renew aging municipal infrastructure.

Assets used in SRFs are lent to communities at favourable rates and eventually returned to the fund through interest and principal repayments. States may also obtain additional funds for their programmes through issuing bonds or bank credits. Some states use the funds they receive through SRFs to back the issue of pooled bonds to meet the financing needs of local governments lacking the creditworthiness and expertise to access credit markets. In general, pooled SRF state bonds will have a credit rating far higher than what local governments could obtain. Yet, whereas the use of leverage provides an immediate increase in available funds and allows states to comply with matching-funding requirements, it may diminish the available funds over time as financial resources that could be disbursed for new projects are instead used to repay principal and interest.

One of the primary objectives of SRF programmes is to maintain, in perpetuity, the seed capital contributed to the programme and use it efficiently. Both the CWSRF and DWSRF are expected to revolve, thereby providing financial assistance far into the future. Interest rates on loans should not be set so low that inflation erodes the long-term SRF purchasing power. On the other hand, rates should not be so high as to offer too small a financial benefit to borrowers. As of 2008, CWSRF has disbursed USD 2.41 for every dollar provided by the federal government since its inception.

States have considerable flexibility to direct funds toward their most pressing needs and achieve the greatest environmental results. They must prepare an annual Intended Use Plan describing how they will use the funds in their SRF programmes. Communities that are interested in receiving assistance, through a SRF, must present their projects to their state, which will rank them in priority order. States also evaluate the financial condition of applicants to ascertain if they have established a dedicated revenue source for loan repayment.

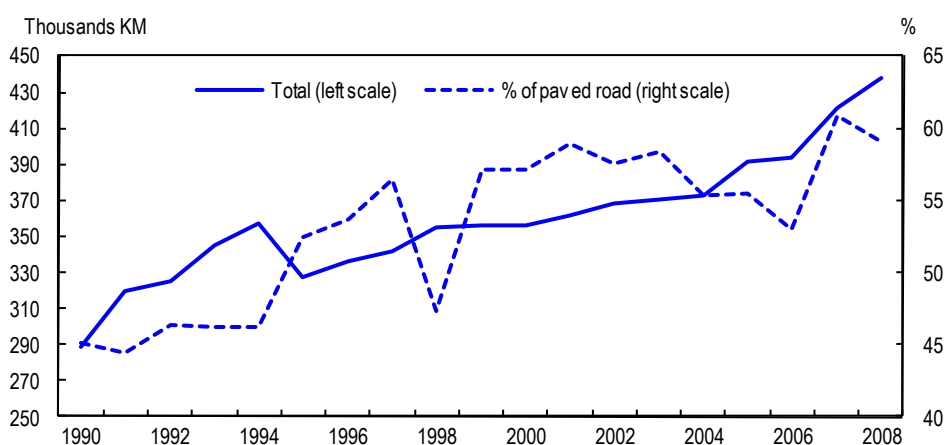
Road transport

Road infrastructure is currently regulated by Law 38/2004 (which covers regulation, maintenance, development and supervision of roads and regulatory authority) and implementing regulations. The Ministry of Public Works is responsible for building and maintenance of road infrastructure whereas the

Ministry of Transport has responsibility over circulation of vehicles. The Indonesia Toll Road Authority (BPJT), an agency within the Ministry of Public Works, has an advisory role and its tasks and powers mainly involve: recommending toll-road tariff levels and their adjustment mechanism to the Minister of Public Works; taking over and managing toll roads at the end of their concession period; soliciting private investment in toll roads through conducting feasibility studies and transparent and competitive bidding procedures; and implementing toll-road regulation and verifying compliance by private operators.

Indonesia currently has a toll road network of around 690 km, mostly concentrated on the Island of Java. Paved roads rose from around 45% of the total at the beginning of the 1990s to about 60% in 2008, but most of the gains took place prior to the Asian crisis (Figure 10).

Figure 10. Total length of road networks and share of paved roads¹



1. East Timor excluded from 1999 onwards.

Source: BPS.

Land acquisition is one of the main obstacles hindering toll-road development and infrastructure more generally. As a result, Indonesia has built, on average, only 23 kilometres of toll roads per year since it started in 1978, and the total length of its toll road network compares poorly with that of Malaysia, for instance, whose toll road network is fully 6 000 kilometres long. Current legislation on eminent domain (*i.e.* the power of the state to seize private property for public or civic use paying due monetary compensation to the owner) mandates that compensation has to be based on fair market value of land and buildings located on it. Because of a lack of an independent agency to decide fair prices, legal disputes over land values end up in courts and are very slow to be resolved. In addition, the practice of selling land, which has been selected for infrastructure projects, to third parties puts upward pressure on the final price investors will be asked to pay.

To overcome land-acquisition problems, the government has set up a land revolving fund of USD 160 million (IDR 1.49 trillion) managed by BPJT to provide bridging finance for toll roads' land acquisition. The authorities are also considering amending the eminent-domain legislation. One option being considered involves lowering, from 75 to 51, the percentage of the needed land for a project the government must have already acquired to trigger court-led consignment, whereby work can start even if there are still pending legal disputes over the remaining land. According to the draft law currently under discussion, owners will have three months to agree on the compensation proposed by an expert assessor certified by BPN (The National Land Agency). If the parties do not reach an agreement within this deadline formal court proceedings will follow. Moreover, to protect private investors over spiralling costs of land acquisition once negotiation starts, the government will be responsible for any increase in land

price above 110% of the level stipulated in the contract with private investors. For this purpose the government has allocated about USD 543 million (IDR 4.89 trillion) to the Land Capping Fund for the next 5 years. The law would also make it illegal for the owner of land selected for infrastructure projects to sell it to third parties. These measures are likely to assuage investors' fear over escalating costs for land procurement and further private investment.

The planned amendment to the eminent-domain legislation is a step in the right direction toward reforming the process for securing land for infrastructure projects. Authorities should focus on passing and implementing the new law on eminent-domain legislation expeditiously. To determine more swiftly the market price of land to be expropriated, the government could also consider allocating this responsibility to BPN, which is likely to already have the expertise to reach fair solutions. This may shorten markedly the time required to reach a final decision on compensation, when compared to relying on civil courts, thereby lowering uncertainty about final land acquisition costs.

In general, building and maintenance of national and provincial roads is financed through the DAK (Feaver, 2008). A Road Preservation Fund was created in 2009 to tackle deteriorating road quality. Its resources will be used for road maintenance and rehabilitation only. Road users can be charged, although details about funding, organisation and management of the Fund still have to be determined in implementing regulations. The government should concentrate on rapid implementation of necessary regulations to define the source of funding, organisation and management of the Road Preservation Fund and make it operational. It also needs to provide more incentives to sub-national governments to allocate higher local budget resources to road maintenance, since most of the road network (around 90%) is under their responsibility. Incentives for upkeep could take the form of making central-government transfers for additional investment in the road sector conditional on appropriate road maintenance.

Telecommunications

Indonesia started to modernise its telecommunications sector in the mid-1990s through the partial privatisation of Telkom and Indosat. Following the Asian crisis the government issued a "Sector Blueprint" setting forth the basic principles it intended to use to reform the sector and achieve full competition by 2010. In 1999, momentous changes were introduced in the sector including: the possibility for privately owned enterprises to provide telecommunications services without entering in joint ventures or concession agreements with SOEs; sanctioning the abuse of dominant positions and prohibiting *de facto* monopoly practices; determining tariffs by operators based on a formula set by the government, instead of being decided by the government; assigning network operators the obligation to provide interconnection services; and allowing the government to retain its regulatory power with the option of delegating it to a regulatory agency. This change in the sector's legal framework was accompanied by a further reduction in the government's participation in Telkom and Indosat and termination of their exclusivity rights for specific services before schedule.⁹

In 2003 the government created the regulatory agency for the telecommunications sector (*Badan Regulasi Telekomunikasi Indonesia*, BRTI). BRTI is supposed to be independent from government and private operators and its role is to guarantee a transparent, independent and fair telecommunications industry. Its specific duties involve organising and establishing network and service operations (such as evaluating and awarding licenses), and supervision and control over the telecommunication network and

9. Despite its divestiture of Telkom, at the end of 2008 the government's participation still stood at 52.5% (Telkom, 2009). In addition, the Ministry of Finance holds a "golden" share with special voting rights, giving it veto power on some strategic issues. At the end of 2009 the government held around 14% of Indosat's capital in common stock (Indosat, 2010).

service operations. In fulfilling its duties, BRTI must seek opinions and inputs from the parties affected by its decisions.

BRTI it is not actually a fully independent body. It is comprised of the Directorate General of Post and Telecommunications and the Telecommunications Regulatory Committee. The Director General of Post and Telecommunications, who is a public servant, is BRTI chairman, *ex-officio*. Besides, BRTI's budget is 100% funded through government appropriation. Still, it is at least functionally separate from the government since the members of the Telecommunications Regulatory Committee are not civil servants but are chosen, by the government, from the private, public and academic sectors on the basis of their expertise (Latifulhayat, 2008).

Overall the BRTI appears to have served the industry and consumers well. BRTI's members possess technical expertise and have been appointed openly and transparently. In turn, BRTI has sought the input and opinion of different parties to inform its decisions. However, the government still plays a conflicting role as simultaneously being the major shareholder in Telkom and the regulator. Granting BRTI more independence from the executive power would go towards clearly separating these conflicting roles. This could involve removing the need for ministerial approval in BRTI's decisions and eliminating the rule that the Director General of Post and Telecommunications, or any other civil servant, has to chair BRTI. One way to make the regulator more independent could also involve funding its budget with licence fees and levies from operator turnover.

Competition in the telecommunications sector has increased substantially since reforms were launched in 1999, but the market, although counting 15 operating companies, is still dominated by a few large operators. The share of the population with telecommunications devices has increased notably in recent years (Table 1), although a large divide still remains between urban and rural areas. Wireless and fixed-wireless services have experienced robust growth, whereas fixed-line services have grown more slowly, partly because of fixed-wireless substitution. Regarding internet services, competition among service providers has strengthened, but access to the internet still lags well behind regional peers and OECD levels, with dial-up being the dominant mode of access. Limited internet access is attributable to a lack of fixed lines and the low spread of personal computers, especially in rural areas. Access to telecommunication services is rarer among poor than well-off households (Table 8). The gap between them for owning a computer and a mobile phone increased from 2005 to 2008 and narrowed for fixed lines.

Table 8. Access to telecommunications services by income levels, 2008

	Lowest quintile	2 nd quintile	3 rd quintile	4 th quintile	Highest quintile	Difference: Highest – Lowest	
						2008	2005
Fixed line phone	0.9	2.3	4.4	9.3	30.1	29.2	37.0
Mobile phone	12.2	32.3	49.6	67.5	88.4	76.2	54.5
Own a computer	0.5	1.7	3.6	8.2	33.2	32.7	12.1
Internet connection	0.6	1.7	2.5	3.8	8.2	7.6	..

Source: Susenas and OECD calculations.

In 2007 the government started to auction subsidies to companies willing to provide basic telecommunication services in designated areas currently lacking them, as a way to meet its universal service obligation. The government applied the same approach for internet services in 2009. Tenders have been completed for telecommunication services in 2009 and internet services in 2010. Subsidies are limited to five years. The initiative to auction subsidies for extending services in underserved areas is laudable, as

it is likely to narrow substantially and eventually eliminate the digital divide among different areas, and the government needs to press it forward to meet the universal service obligation.

Current legislation is ill suited to prepare service convergence (*i.e.* the confluence of previously distinct media services on single devices) as it is based on a concept of the industry as comprising vertically separated services. To overcome this problem, the government has recently reorganised the Ministry of Communications and Information Technology, whose functions and tasks have been structured to manage and regulate the process towards convergence. In addition, the government is considering introducing the unified access service license for telecommunications services, which would allow the same operator to offer a variety of services. New regulations need to be issued to manage and accelerate the convergence process. The introduction of a unified access service license would be a big step in this direction and would strengthen competition, contributing to lower prices.

Ports and shipping

Indonesia is an archipelago country spread over around 18 000 islands. It counts around 1 700 ports, which are organised in a hierarchical system consisting of 111 *commercial* ports, about 1 000 *special-purpose* ports (*i.e.* private terminals serving the needs of individual companies) and around 600 *non-commercial* ports, which tend to be unprofitable and of little strategic value. In all commercial ports one of four SOEs, also known as *Pelindos*, has a legislated monopoly with the result of playing the dual role of port authority and sole port operator. As port authorities, they set the tariffs shipping companies have to pay to access these services and have regulatory authority over private-sector terminals.

The legislative framework is currently in a state of flux. A new shipping law, approved in 2008, provides a comprehensive reform of the port system, but it will not be fully implemented until 2011. This law replaces the previous 1992 legislation, which seems to have constrained the growth of Indonesia's shipping industry and made it less efficient by undercutting competitive pressures (Dick, 2008). Ray (2008) reports that the Jakarta International Container Terminal, although one of the most efficient Indonesian ports, is one of the poorest performing in all of Southeast Asia with respect to productivity and unit costs.

The new legislation introduces a simpler regulatory structure, specifically in business licensing and port management. Local governments are now in charge of issuing licences for inland waterways and ferries and coastal passenger transport. In addition, the law sets easier requirements than the previous system to obtain a shipping licence, which could boost competition in the industry.¹⁰ The new legal framework also makes provision for the creation of port authorities, thus recognising the distinction between port management and regulation. Powers and responsibilities of port authorities are shaped around the management concept of *landlord port*. In this model, the port authority owns the land and basic infrastructure such as wharves, which are rented or leased to private operators. Operators invest in cargo-handling equipment, hire personnel and negotiate contracts with shipping companies to unload and load cargo.

The main benefit of the new system is that it holds the promise of breaking the monopoly of the four SOEs, which are supposed to turn into port operators. The port authorities will regulate one or more commercial ports and, in consultation with local government, will issue concessions to port operators and regulate their activities. Similar changes in Mexico have resulted in significant improvements in the productivity of ports and reductions in cargo handling charges (Estache *et al.*, 2004). In the case of

10. These involve being a legal entity and owning an Indonesia-flag vessel of at least 175 gross tonnes, whereas the previous regulations required holding already two licences, namely business and operating licences, before obtaining shipping permission.

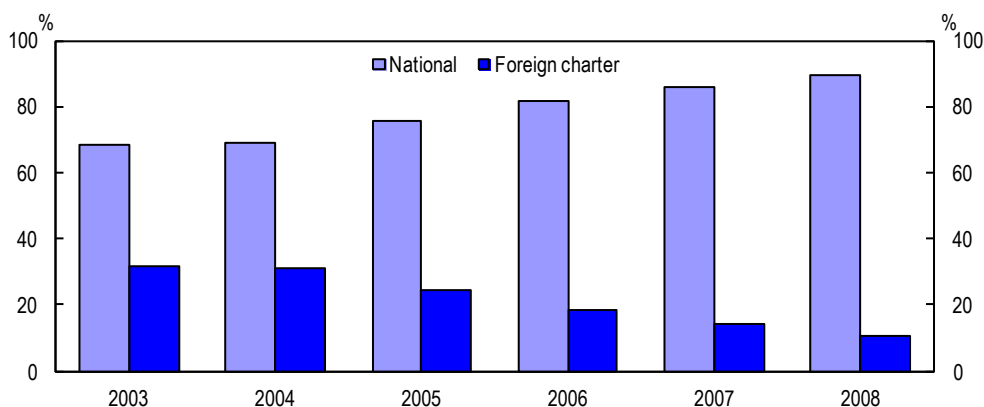
Indonesia, however, the law stipulates that port authorities will be staffed by civil servants and will be under ministerial authority, thus granting them little independence from the executive.

The new regulatory framework also specifies that *special-purpose* terminals may be converted into public ports. This may lead to increased inter-port competition, but it is unclear whether private owners will forsake their ownership rights when details about the new regulatory framework have yet to be set in implementing regulations. Under the new law, private ports will not be able to handle third-party cargo, thus limiting the inter-port competition private ports will be able to provide.

The separation of port operations from their regulation with the creation of port authorities around the concept of landlord port management is a welcome development and promises to improve ports' efficiency significantly. The authorities should focus on issuing implementing regulations necessary to make the new port authorities operational soon. Their ability to perform their duties effectively could be jeopardised by the requirement that they must be staffed solely by civil servants. The authorities should consider the alternative of recruitment based on experience and qualifications instead. In addition, the authorities will need to develop a plan to manage the transition of those currently employed by port management companies to new port authorities or other companies.¹¹

The new system also legislates that the right to cabotage (*i.e.* the transport of goods or passengers between two points in the same country) is reserved to national shipping companies, using Indonesia-flag vessels and crewed by Indonesian nationals. Restrictions on cabotage, requiring domestic sea cargo to be shipped by national vessels, were re-introduced in 2005, if only partially, and appear to have been inspired by protectionist considerations, which are unlikely to be consistent with the objective of developing a competitive and modern sea transport sector. There is some evidence that this policy has decreased the share of foreign charter ships operated by foreign companies, probably exerting a negative effect on competitive pressures (Figure 11).

Figure 11. Share of ships by type of ownership



Source: Ministry of Transportation.

Reducing restrictions on foreign cabotage will prove to be beneficial to the Indonesian shipping industry in the long term because of the enhanced competitive pressures it will generate. Although restrictions on cabotage by foreign vessels are applied in many countries, they are likely to have more pernicious effects in Indonesia because of its geography and the importance sea-transport has. Also,

11. Similar transitional issues were experienced by the two concessionaires of Jakarta's water supply, which "inherited" more than 50% of the former public-owned water supplier's employees (Lanti *et al.*, 2009).

foreign competition in the shipping and port management sectors is already limited since port services and domestic sea transport are still on the “Negative Investment List” which limits foreign ownership to 49%.

In addition, according to the new shipping law the State will control routes through a highly complex system-wide network to manage inter-island shipping.¹² The new shipping law also confers powers on the government to set passenger fares. Inter-island freight rates can in principle be freely determined by shipping companies and their clients, but the law mandates that these will have to be consistent with the tariff types, structure and categories defined by the government. The same requirement will apply to port service tariffs charged by port operators. How freight tariff types, structure and categories are determined will impinge on the ability of shipping companies and port operators to set tariffs and freight rates on a commercially viable basis. If rates are set too low, they will discourage entry or the opening of new routes. A better option would involve letting shipping companies freely determine their tariff rates, thus stimulating competition. In order to satisfy any regional policy objective or ensure national unity, the government could then auction subsidies to ensure the provision of services over unprofitable routes.

Box 8. Summary of policy recommendations: Infrastructure

Improving infrastructure spending

- Consider increasing the planned public spending on infrastructure from 2011 to 2014 by 0.2% of GDP beyond what is currently planned.
- Use the Medium-Term Expenditure Framework more effectively to improve multi-year budget appropriations for infrastructure projects and improve coordination among ministries responsible for infrastructure development.
- Commission sector studies to gauge yearly maintenance expenditure in different sectors and allocate budget resources accordingly.
- Undertake rigorous value-for-money tests to assess the relative and absolute cost-effectiveness of PPPs. Carefully monitor whether the private sector bears the appropriate share of risk.
- Thoroughly assess demand-side risks the government may be assuming in PPP projects by appointing independent advisors to provide conservative and independent demand forecasts.
- Provide incentives to local governments to allocate budget resources for roads, water and sanitation by making transfers conditional on appropriate upkeep.

Strengthening the regulatory framework

- Establish independent regulatory bodies in the sectors currently lacking them; initially they could be created as having a purely advisory role.
- Lower regulatory uncertainty by legally entrenching the power and responsibilities of regulatory bodies.
- Grant independence to existing regulatory entities by eliminating the need for ministerial approval of their decisions and by funding their budgets through licence fees and levies on firms.
- Eliminate any requirement that regulatory bodies be staffed by civil servants and base recruitment on qualification and experience only.
- Consider conferring on regulatory bodies the power to resolve contractual disputes between concessionaires and public authorities before going to arbitration or the courts.
- Further strengthen the public accountability of regulatory bodies by formally evaluating their operations at regular intervals and increasing their transparency.
- Lower FDI restrictions on equity and on foreign key personnel in telecommunications, transport and electricity.

12. All companies are required to be part of this network, which is to be specified by the central and regional governments, the Indonesia Ship-owners Association and the Association of Sea Transport Users, considering the distribution of economic activity, regional development and national unity.

Electricity

- Phase out electricity subsidies and compensate low-income households through existing cash-transfer programmes or subsidies to new connection to the grid.
- Develop a coherent plan to extend electrification in rural areas by auctioning subsidies competitively.
- Develop a plan to integrate captive power plants into the grid.

Water and sanitation

- Accelerate the restructuring programme of the debt of local government utilities (PDAMs).
- Consider the creation of revolving funds managed by provinces.
- Strengthen the role of the National Association of Water Utilities (PERPAMSI) and extend its benchmarking exercise to disseminate best practices.
- Realign average water tariffs to cost-recovery levels and use existing cash-transfer programmes to compensate low-income households.

Road transport

- Reform eminent-domain legislation to expedite the process of land acquisition. Consider allocating to BPN (the National Land Agency) the responsibility to resolve disputes over land value.
- Swiftly issue implementing regulations to establish the Road Preservation Fund.

Ports and shipping

- Expedite release of implementing regulations to establish port authorities.
- Reduce restrictions on cabotage by foreign vessels so as to raise competition in the shipping industry.
- Develop a plan to manage the transition of employees currently employed by port management companies (*Pelindos*) to new port authorities or other companies.
- Allow shipping companies to determine freely their freight and passenger tariffs, and, if necessary, auction subsidies to ensure the provision of services over unprofitable routes.

Telecommunications

- Make the sectoral regulator (BRTI) more independent.
- Press forward the plan of auctioning subsidies as a cost-effective way to extend telecommunications services in underserved areas to meet universal service obligations.
- Issue regulations consistent with the ongoing service convergence process and introduce the unified access service license.

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