Infrastructure plans and policies in Indonesia are a bewildering kaleidoscopic mixture of promises, under-fulfillment, delays, and outright cancellations. There is little coordination between the silos of the various sectors (transport, power, water, telecommunications, and so on); there is a myriad of different policymakers and regulatory agencies in central, provincial, and kabupaten governments; and because engineers and officials who believe in something they call ‘planning’ tend to dominate policy-making circles, attention to economic principles in the design of infrastructure policy is often brushed aside. This survey of policy discussion about infrastructure issues in Indonesia will draw, particularly on material published in the BIES on these issues since 1965. The underlying questions which will be discussed here are, first, what have been the main developments in the various infrastructure sectors during the past five decades?, and secondly, what have been the main policy and management bottlenecks holding back growth in infrastructure in Indonesia?

Two matters need to be noted at the outset. The first is that infrastructure policy is currently a top concern for economic policy makers – ministers and officials alike – in Jakarta. In his first few months in office, President Joko Widodo made a series of major announcements about plans for the infrastructure sector. He abruptly cancelled tentative plans to build the large ($20 billion) Sunda Strait Bridge; consistent with his plans to emphasise the maritime development of Indonesia he announced a number of projects to expand ports across Indonesia; he said his plans were to build a total of 30,000 MW in the generation sector. A range of other projects in other sectors have been announced in recent months. The result is that expectations for a burst of activities in the infrastructure sector have been raised.

Second, it needs to be borne in mind that that few of the main issues in infrastructure policy which attract widespread comment today are not new. All of the basic problems were discussed in early issues of the BIES Surveys of Recent Developments (SRDs). What is striking is how little progress – in a 50 year period – has been made in tackling them even though actual development of infrastructure has been significant yet insufficient.
Introduction: Framework

Infrastructure policy is complex. There is the need for senior policymakers in government, first, to avoid becoming too closely involved in the details of management, and second, to concentrate mainly on designing the overall frameworks for policy in each sector. Perhaps the key challenge in finding the balance between these two considerations is to design good regulatory arrangements for each infrastructure sector.

It is useful to have a framework to consider these issues. As a first step, it helpful to define infrastructure. In this paper, a slightly amended version of the definition suggested by Wharton (1967) will be used. Infrastructure can be regarded as:

The physical capital and the institutions or organizations, both public and privately owned, which provide economic services and which have a significant effect, directly or indirectly, on the economic functioning of economic actors (both individuals and firms), but which are external to each separate economic actor.

Further, as part of a framework, it is helpful to bear in mind the broad sets of factors influencing demand and supply for infrastructure (Figure 1). The details vary from sector to sector but on the demand side in Indonesia there are often several distinct markets for infrastructure services. On one hand, there is a demand from different types of consumers (household, industrial, commercial, and other consumers) in the modern, formal sector of the economy. On the other hand, there is also a demand for services from small scale consumers.

On the supply side, there are a number of related but separate policy issues. Financial issues naturally loom large for senior policymakers. Technical issues, including access to land, often set fairly strict constraints on the options for the supply of services. Governance and internal management issues need close attention. Safeguard issues such as environmental and social standards are wider issues that affect community expectations. And beyond these specific issues there are wider policy considerations as well. One set of issues is the overall framework of political, regulatory and legal issues which infrastructure sectors must operate within. Another set of issues is the broad financial and economic constraints – including the key issue of pricing policies – set down for infrastructure sectors.

---

1 Discussion here draws on the outline in McCawley (2010).
Figure 1: Framework of policy issues

Overall political, regulatory and legal issues for the sector

This diagrammatic presentation makes it clear that it is inevitable that many issues in the infrastructure sector will be contested by numerous different interest groups. On the demand side, larger consumers in the formal sector can be expected to press for increases in services. Smaller consumers, many of whom are in the informal economy, often resort to imaginative ad hoc measures of numerous kinds to gain access to infrastructure. On the supply side, there is a push-and-pull between the numerous policy makers and other actors involved in different sectors. Further, the regulatory framework in Indonesia is not well-established. Decisions by various institutional groups – such as the parliament, the executive, or the Constitutional Court -- can cause much uncertainty for actors in infrastructure operations.

Bearing this framework in mind, the following sectors of this survey will, first, outline the development of the infrastructure sector in Indonesia in main sectors (roads, rail, airline transport, shipping, electric power, telecommunications, and water, sanitation and irrigation), and then consider a range of specific issues under the three headings of demand, supply, and regulatory arrangements.

Post-Independence

There was relatively little growth in the infrastructure sector during the 1950s and into the 1960s. The previous decades of the 1930s and 1940s had, of course, been difficult ones. In the transport and other communications sectors important parts of Java had been well served at the beginning of the century. In a survey of competition between the railways and other modes of transport at the time, Dick (2000: 187) observes that in 1900, Java had ‘a sophisticated agro-industrial economy integrated by overlapping...
networks of telegraphs, telephones, railways, narrow-gauge tramways and good roads. Nowhere in Southeast Asia could boast better infrastructure. Elsewhere in East Asia, only Japan could compare.'

Services in the railways and most other parts of the transport sector steadily declined in the following decades. In the late 1950s the dilapidated transport network added very considerably both to the costs of transporting rice and to the losses within the marketing network. A good deal of rice was transported through simple infrastructure systems (carts, carrying-poles, and bicycles) on unsealed tracks. Rail and trucks carried food supplies to the main cities on Java while in Sumatra and Kalimantan considerable use was made of waterways (Mears 1961). To be sure, President Sukarno had on various occasions announced major infrastructure plans during the 1950s and 1960s. But too often, as on numerous occasions since then, ambitious infrastructure plans were not supported with the resources needed. The situation, then, at the beginning of the period of the New Order government was that most infrastructure across the nation had suffered a long period of neglect.

Roads and motor transport

Beginning in early 1970s a revolution in road transport began to get underway. As the road network grew, and as the economy became more open to both foreign investment and imports, a remarkable structural transformation in the road transport system began to occur. Traditional forms of public transport such as the becak (trishaw) and horse-carts found it hard to compete with the swelling numbers of small pick-up trucks (often called ‘colts’) and buses appearing on the roads (Booth and McCawley 1981: 8). Indonesian consumers also quickly took to the use of light motorcycles produced by well-known Japanese suppliers such as Yamaha, Honda, and Suzuki. Into the mid-1980s, the numbers of both trucks and motorcycles on Indonesian roads grew at well over 12% per annum (Table 1).

These developments were transformative of what is now called ‘connectivity’ across the nation. The cost and convenience of both long-distance intercity travel and local journeys improved dramatically. It became quite common for workers from previously isolated rural areas in Java such as Gunung Kidul in Yogyakarta to take up construction jobs in places as far afield as Jakarta or even South Sumatra. (Dick 1981b:88). The situation in the Outer Islands, however, was mixed. In some places, rapid changes had taken place. In North Sumatra, for example, the road system improved greatly during the 1970s (Ginting and Dârõesman 1982: 71). But in other parts of the Outer Islands, especially in eastern Indonesia, there had been less improvement.
Table 1: Total registered motor vehicles, 1970-2013

<table>
<thead>
<tr>
<th></th>
<th>Cars ('000)</th>
<th>Buses ('000)</th>
<th>Trucks ('000)</th>
<th>Motorcycles ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>239</td>
<td>24</td>
<td>103</td>
<td>440</td>
</tr>
<tr>
<td>2013</td>
<td>11,485</td>
<td>2,286</td>
<td>5,615</td>
<td>84,732</td>
</tr>
</tbody>
</table>

Average annual growth rates (%)

| 1970-75 | 9.9     | 7.8     | 14.0    | 22.1    |
| 1975-80 | 10.8    | 19.7    | 19.3    | 17.5    |
| 1980-85 | 9.2     | 21.4    | 12.3    | 12.4    |
| 1985-90 | 5.8     | 15.6    | 3.9     | 4.9     |
| 1990-95 | 9.9     | 8.0     | 5.5     | 8.3     |
| 1995-00 | 7.6     | -0.7    | 5.0     | 8.4     |
| 2000-05 | 12.6    | 12.2    | 11.3    | 16.1    |
| 2005-13 | 9.7     | 8.6     | 14.0    | 14.6    |
| 1970-13 | 9.4     | 11.2    | 9.8     | 13.0    |

Source: Biro Pusat Statistik, Statistik Indonesia, various years. Data in various issues of Statistik Indonesia is not always consistent of complete. In this table and the tables that follow, all possible care has been taken to ensure accuracy of data. In a few cases, to bridge gaps, extrapolation has been necessary to prepare a full series of data. Data shown in the tables is taken to reflect the rising demand for better infrastructure in Indonesia.

The boost to Indonesia government revenues from the two oil price booms (1973-74 and 1979) helped fund road and other infrastructure programs throughout the 1980s. Throughout the 1980s real investment in roads in Indonesia continued to grow at a strong rate of around 7% per year (Table 2).

Faced with a tightening fiscal situation at the end of the 1980s, policy makers began looking to other ways to finance infrastructure spending. A growing acceptance of the need to mobilise private sector investment was reflected in policies towards the road sector as well as other main parts of the infrastructure sector as well. Throughout the 1990s, arrangements such as management contracts and joint ventures between state enterprises and large private firms were entered into for such projects as tollroads which involved BOT (build-own-transfer) and BOO (build-own-operate) contracts. Partnerships of this kind did not always go smoothly however. And tendering processes sometimes lacked transparency (Hill 1996: 185).
Table 2: Length of roads, 1970-2013

<table>
<thead>
<tr>
<th>Length of roads ('000 km)</th>
<th>State</th>
<th>Province</th>
<th>Regency</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>10.2</td>
<td>22.7</td>
<td>51.4</td>
<td>84.3</td>
</tr>
<tr>
<td>2013</td>
<td>38.6</td>
<td>53.6</td>
<td>410.5</td>
<td>502.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average annual growth rates (%)</th>
<th>70-75</th>
<th>75-80</th>
<th>80-85</th>
<th>85-90</th>
<th>90-95</th>
<th>95-00</th>
<th>00-05</th>
<th>05-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-13</td>
<td>3.1</td>
<td>2.0</td>
<td>5.0</td>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: As for Table 1.

There was a sharp slowdown in investment in the road sector following the Asian Financial Crisis in 1997/98. Between the mid 1970s and the mid 1980s, real investment in local roads at the kabupaten level had grown at almost 10% per year. But in the decade after 1995, real investment slumped to less than 2% per annum.

One of the much-discussed features of this slowdown in investment in roads is the increasing congestion on Indonesian roads, particularly in Java, and especially in Jakarta. Traffic congestion is now a serious problem in Jakarta (Thee and Negara 2010: 304). The core of the problem is that the demand for roads space in Indonesia has grown much more rapidly than supply. The total length of roads across the country in period between 1970 and 2013 grew at slightly over 4% per year (Table 2). In the same period, the number of motor vehicles grew at around 12% per annum. Greater reliance on railways, particularly in Java, would seem to be urgently needed in the coming decades. The challenges to be faced in the rail sector will be discussed in the next section.

Rail

At the beginning of the 1970s the rail sector had suffered from decades of neglect. The main central railway stations in Jakarta -- such as downtown Kota, Gambir, Pasar Senen, and Jatinegara -- were chaotic and often hopelessly disorganized places while the trains themselves were badly maintained. In Central Java it was reported that the railways were required to maintain uneconomic routes for social reasons and that revenues had continued to decline ‘mostly owing to non-payment of fares by the military’ (Partadireja 1969:39).
In the Outer Islands the neglect of the rail sector, if possible, was even more marked. In the West Sumatra railway system, passenger traffic had declined sharply in the late 1960s and over half of the passenger equipment was over 70 years old (Esmara 1971: 51). In Aceh most of the locomotives (wood-fuelled) were more than 80 years old. The railway had been running at a large loss for many years (Boediono and Hasan 1974: 50). The system, in effect, ceased operations in the early 1970s.

During the next several decades the rail sector had mixed fortunes. After a sharp decline in rail passenger traffic in the early part of the 1970s there was a recovery and then a generally steady growth in demand. Over the entire period 1970-2013, total passenger traffic (almost wholly in Java) increased at the modest but sustained rate of 3.5% per annum (Table 3).

### Table 3: Railway traffic, 1970-2013

<table>
<thead>
<tr>
<th>Passengers (millions)</th>
<th>Freight (million tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Java</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>46.0</td>
</tr>
<tr>
<td>2013</td>
<td>211.3</td>
</tr>
</tbody>
</table>

**Average annual growth rates (%)**

<table>
<thead>
<tr>
<th></th>
<th>70-75</th>
<th>75-80</th>
<th>80-85</th>
<th>85-90</th>
<th>90-95</th>
<th>95-00</th>
<th>00-05</th>
<th>05-13</th>
<th>70-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java</td>
<td>-15.3</td>
<td>13.7</td>
<td>3.0</td>
<td>4.9</td>
<td>20.5</td>
<td>5.8</td>
<td>-4.6</td>
<td>4.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Sumatra</td>
<td>-9.0</td>
<td>8.7</td>
<td>-6.6</td>
<td>-3.2</td>
<td>1.7</td>
<td>9.3</td>
<td>-4.5</td>
<td>3.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>-14.8</td>
<td>13.2</td>
<td>2.2</td>
<td>4.5</td>
<td>19.9</td>
<td>5.8</td>
<td>-4.6</td>
<td>4.5</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Source: As for Table 1.

The recovery of passenger traffic in Java reflected on-going attempts to improve overall management of the rail system. These efforts became especially noticeable after the decision was taken in the early 1970s to electrify the system in parts of Java. Main railway stations across Java became much better organized and maintained. Nevertheless, despite significant improvements, major problems remain. One is the financial challenge that PT KAI faces. Prices for railway services, especially for passenger travel, are still very low and do not cover full costs. PT KAI must therefore rely on uncertain subsidies from the central government. And yet it is difficult for PT KAI to increase tariffs because of the universal expectation in Indonesia that railway services will be provided at low cost, and because of cut-throat competition from high risk bus and truck operators who do not, in any case, cover the full costs of their use of the road system (Jakarta Post 2010; Jakarta Post 2011).

A second challenge is the urgent need to fund large investments in other parts of the railway system. Most parts of the rail system in Indonesia are still badly neglected. Most of the main lines in most parts of Java remain single track, and most are in need of repair. The main line in the eastern part of East Java from Surabaya to Banyuwangi is still single track, for example.
Looking ahead, it would seem that a resurgence of the rail sector is needed. Significant plans for increased investments were listed in the Government’s 2011 Masterplan (Indonesia 2011). In Java, road traffic density often seems close to breaking point, and in various parts of the Outer Island there is a growing need for expanded rail services to transport goods, especially coal, to ports for export or for use in Java.

**Air**

Like other parts of the overall infrastructure sector in Indonesia, at the end of the 1960s the airlines industry was in a neglected state. The state-owned airlines Garuda had a near-monopoly in the main domestic routes and international carriers did not see Indonesia as an encouraging market. Prospects for the sector began to pick up quickly, however, as overall economic conditions improved. In recent decades, air services in Indonesia have expanded rapidly. Over the entire period 1970-2013, both domestic and international services provided in the industry grew by around 10% per year (Table 4). Indeed, developments in the airlines industry over the past five decades provide useful lessons about competition policy for other parts of the infrastructure sector. For most of the first three decades an inward-looking protectionist approach influenced Indonesia policy toward regulation of the airlines industry. The situation changed dramatically following the 1997-98 financial crisis in Southeast Asia when much more vigorous competition became the norm in the region.

Despite the restrictions on expansion imposed by the dominance of Garuda, growth during the 1970s, beginning from a low base growth, was very rapid. Across Indonesia, regional airlines services improved markedly, greatly facilitating official and business travel, and boosting tourism in well-known centres such as Bali and Yogyakarta. In Yogyakarta, for example, the number of main airline flights to Jakarta expanded from 4 per week in 1968 to 4 per day in the late 1970s (Hill and Mubyarto 1978). Throughout the decade, domestic passenger traffic grew by around 20% per year (Table 4).
This burst of growth in the domestic airlines sector slowed somewhat during the 1980s, reflecting a slowdown in the Indonesian economy and a reluctance of regulators to encourage competition in the industry. There was later a recovery into the 1990s until the 1997-98 financial crisis led to a sharp decline in both domestic and international air services in Indonesia.

### Table 4: Air traffic, 1970-2013

<table>
<thead>
<tr>
<th></th>
<th>Domestic</th>
<th></th>
<th>International</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Passenger</td>
<td>Cargo</td>
<td>Passenger</td>
<td>Cargo</td>
</tr>
<tr>
<td></td>
<td>arrivals</td>
<td>loaded</td>
<td>arrivals</td>
<td>loaded</td>
</tr>
<tr>
<td>Total movements</td>
<td>1970 (a)</td>
<td>0.6</td>
<td>4.7</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>2013 (a)</td>
<td>73.9</td>
<td>484.1</td>
<td>12.6</td>
</tr>
</tbody>
</table>

| 70-75 | 33.0 | 44.0 | 28.5 | 23.3 |
| 75-80 | 16.2 | 14.4 | 9.5  | 33.7 |
| 80-85 | 2.9  | 4.0  | 0.0  | 4.3  |
| 85-90 | 7.8  | 10.1 | 13.8 | 31.1 |
| 90-95 | 8.0  | 9.7  | 14.3 | 15.0 |
| 95-00 | -8.7 | -5.4 | -0.5 | 0.0  |
| 00-05 | 25.7 | 16.7 | 7.7  | -2.2 |
| 05-13 | 13.9 | 6.5  | 10.2 | 5.7  |

| 70-13 | 11.8 | 11.4 | 10.1 | 12.6 |

(a) Passengers are in millions. Cargo is in '000 tons.

**Source:** As for Table 1.

The 1997-98 crisis forced reform in the industry, both in Indonesia and in other parts of Southeast Asia (Damuri and Anas 2005). Deregulation and liberalisation allowed the entry of new low-cost carrier firms. Firms such as Lion Air, Adam Air, and Citilink (a Garuda subsidiary) were soon established and competed vigorously, radically changing the nature of the airline business in Indonesia. Domestic passenger traffic, especially, began to grow very rapidly. In the decade to 2013, domestic passenger traffic grew at around 15% per annum rising from 18.1 million passengers in 2003 to 73.9 million in 2013. The result has been that many of the main airline terminals across Indonesia are now packed for much of the time. In Jakarta, it was reported that more than 51 million passengers passed through Soekarno-Hatta airport in 2011, more than 130% above the original planned capacity of 22 million (Osman 2012).

**Shipping**

The shipping system, including ports, is part of the ‘connectivity system’ of Indonesia. Three dimensions of connectivity are relevant in Indonesia’s water transport sector: intra-island connectivity, inter-island linkages, and international transport arrangements (Baird and Wihardja 2010: 159).
In some parts of the Outer Island, the water transport systems provide the most important form of intra-island connectivity. In South Kalimantan, for example, ‘rivers and canals … are like roads and highways in Java’ (Partadireja 1970). In provinces in southern Sumatra such as Riau, most of the towns and most of the population are located along the 15 navigable rivers of the province so local water transport systems carry large volumes of cargo and passengers.

Inter-island and international shipping systems, which often rely on substantial port facilities, attract more attention from policy makers than do the smaller intra-island links. In the late 1960s, the sailing time of ships was said to be greatly limited because many ports were silted up and it was reported that only 30% of navigation buoys were in working order (Panglaykim, Penny and Thalib 1968: 23)

Table 5: Sea cargo, 1970-2013

<table>
<thead>
<tr>
<th></th>
<th>Inter-island</th>
<th></th>
<th>Foreign</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Loaded</td>
<td>Unloaded</td>
<td>Loaded</td>
<td>Unloaded</td>
</tr>
<tr>
<td>Total cargo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970 (mt)</td>
<td>9.5</td>
<td>11.9</td>
<td>21.6</td>
<td>4.4</td>
</tr>
<tr>
<td>2012 (mt)</td>
<td>312.6</td>
<td>327.7</td>
<td>488.2</td>
<td>69.6</td>
</tr>
<tr>
<td>Average annual growth rates (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70-75</td>
<td>8.1</td>
<td>8.0</td>
<td>19.8</td>
<td>15.9</td>
</tr>
<tr>
<td>75-80</td>
<td>7.7</td>
<td>10.4</td>
<td>2.5</td>
<td>3.6</td>
</tr>
<tr>
<td>80-85</td>
<td>12.8</td>
<td>10.6</td>
<td>-1.9</td>
<td>7.6</td>
</tr>
<tr>
<td>85-90</td>
<td>13.4</td>
<td>13.1</td>
<td>14.8</td>
<td>10.4</td>
</tr>
<tr>
<td>90-95</td>
<td>20.8</td>
<td>9.1</td>
<td>3.8</td>
<td>22.8</td>
</tr>
<tr>
<td>95-00</td>
<td>-6.5</td>
<td>0.2</td>
<td>1.4</td>
<td>-9.2</td>
</tr>
<tr>
<td>00-05</td>
<td>3.3</td>
<td>3.4</td>
<td>2.6</td>
<td>2.3</td>
</tr>
<tr>
<td>05-12</td>
<td>11.0</td>
<td>10.5</td>
<td>17.2</td>
<td>4.7</td>
</tr>
<tr>
<td>70-12</td>
<td>8.7</td>
<td>8.2</td>
<td>7.7</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Source: As for Table 1. For selected years data was taken from (2000-2004, 2007 and 2008, and 2011) the CEIC database.

Notes: Estimates for 1970-74 for (a) Inter-island cargo were calculated by projecting 1975 backwards using the annual GDP growth rate for Indonesia, and (b) for foreign cargo by projecting real growth of exports and imports backwards from 1975. Estimates for 1979, 1982 and 1998 were calculated by interpolating between the previous and the following year. Estimates for 1996 reflect real growth rate figures as used for the 1970-74 period.

As was the case with other parts of the infrastructure sector, there was a recovery in the use of shipping services during the 1970s which strengthened during the latter part of the 1980s and into the next decade (Table 5). But the impact of the 1997-98 crisis and the subsequent prolonged slowdown had a severe impact on shipping. It was not until the Indonesian economy began to return to higher rates of growth around 2007 that the level of activity in the industry also showed a marked improvement.
Issues of competition and regulation have been a central topic of much of the policy discussion about shipping in Indonesia. In the late 1960s, it was widely acknowledged that there were high levels of inefficiency in the shipping sector (both in the use of ships and in the ports) and that costs, prices and competition arrangements all contributed to the problem. Then, as in the succeeding decades, three issues were frequently mentioned as needing attention.

First, the levels of costs and prices in the industry were a subject of constant comment (Ray 2003: 262) . It was pointed out time and time again that domestic freight rates in Indonesia were very high. It was often noted, for example, that the costs of shipping cement by sea from Gresik (near Surabaya) to Jakarta were higher than from Tokyo to Jakarta. Second, the competitive arrangements in the sector did not encourage orderly and efficient market conduct. Sometimes there was unfair competition from non-commercial vessels such as navy or other government-owned ships. At other times, nationalist and protectionist ideas restricted entry into the shipping sector. In a discussion of the 2008 shipping law, Dick surveyed the history of regulation in the industry and concluded that ‘the extra costs of inefficient Indonesian-flag ships have to be borne as a tax on the nation’s trade’ (Dick 2008: 404). The third major problem is both poor management and the existence of a myriad of local payments that need to be made in the ports. These inefficiencies in the ports, bureaucratic delays, and informal payments are universally regarded as unacceptable but are apparently very hard to overcome. They remain as major problems in the Indonesian shipping sector.

Electric Power

In the early 1970s, much of Indonesia was still very poorly served with electricity from the state-owned Perusahaan Listrik Negara (State Electricity Corporation, or PLN). Across the nation, a good deal of electricity was generated by the private sector, either by the larger private manufacturing firms or large hotels (mainly for own-consumption) or by plantations and estates in some rural areas. All sorts of substitutes for a reliable public supply were used as well. When widespread power cuts were introduced in Jakarta in late 1972, prices of candles, portable electricity generators, kerosene and pressure lamps rose by as much as 50%, thus affecting the majority of Jakarta citizens who at that time were not even connected to the formal electricity supply.

Total installed capacity in the public electricity system in Indonesia in the late 1960s was less than 700 MW and production was less than 20 kWh per person (compared with around 7,000 kWh in the United States in 1970). In reality, over 70 years after public supplies of electricity were first introduced into Indonesia in the 1890s, only a small proportion of the Indonesian population had access to electricity in 1970. However, beginning from a modest base, the World Bank and the Asian Development Bank supported investments in electric power projects during the decade (Thompson and Manning BIES 1974). Both capacity and output grew by around 15% per year during the decade (Table 6).

Investment in the expanding power sector was partly financed out of domestic resources but often drew on international funding of one sort or another such as support provided from the multilateral investment banks or export credits. The large (600 MW) Asahan power plant and aluminium smelter in North Sumatra opened by President Soeharto in 1982 involved a total investment of around $2 billion. The bulk of the finance was provided by a group of Japanese private companies and the Japanese government (75%) while the remaining funding was provided by the Government of Indonesia (Ginting and Daroesman 1982: 68)
Table 6: Electricity capacity and output, 1970-2013

<table>
<thead>
<tr>
<th>Capacity and output</th>
<th>Capacity (MW)</th>
<th>Output (GWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>657</td>
<td>2,084</td>
</tr>
<tr>
<td>2013</td>
<td>47,223</td>
<td>213,750</td>
</tr>
</tbody>
</table>

Average annual growth rates (%)

| 70-75 | 14.3 | 12.6 |
| 75-80 | 14.8 | 17.5 |
| 80-85 | 17.1 | 15.0 |
| 85-90 | 10.1 | 15.9 |
| 90-95 | 10.4 | 9.1  |
| 95-00 | 8.7  | 11.2 |
| 00-05 | -0.2 | 6.0  |
| 05-13 | 16.0 | 11.4 |
| 70-13 | 10.5 | 11.4 |

Source: As for Table 1.

In addition to capacity and output growth in the electric power sector during the 1980s, there were two other developments in the industry. First, there was increasing attention to rural electrification. Access to electricity in rural areas was extremely low during the 1970s. A rural electrification program in Bali in the 1970s had proved successful (Bendesa and Sukarsa 1980: 48) and had encouraged the PLN to consider similar approaches elsewhere. By the late 1970s the PLN and various donors were actively supporting rural electrification programs in various parts of Indonesia (McCawley 1978: 61).

A second significant development was that structural change was occurring within the energy sector, partly driven by increasing reliance on coal for power generation (Conroy and Drake 1990: 14). In the late 1980s, as on many occasions since then, the Indonesian Government pointed to the possibilities of expanding the gas sector to support electricity production. But in the event it proved difficult to expand the gas sector. There was already increasing reliance on coal. The large electricity plants in East Java at Paiton built during the 1990s (capacity: over 4,000 MW), for example, were coal-powered installations (Wikipedia 2015a).

The 1990s brought two further major changes in the operating environment for the industry. The first was the announcement of ambitious plans to open the electricity sector to investment from the private sector. By the late 1990s over 20 private companies had expressed interest in building power stations, especially with an eye to providing power to industrial consumers. Reporting on these developments, Soesastro and Drysdale (1990: 29) noted that ‘similar schemes for private sector particularly in the development of infrastructure are also being considered in the management of container terminals in a number of Indonesian ports.’

But the new emphasis on reliance on investment from the private sector came at a cost. Concerns about debt levels, especially foreign private debt, soon emerged as a significant issue (Muir 1991: 3).
1991 the Governor of Bank Indonesia reported to parliament that the offshore commercial loans in March 1991 stood at $16 billion, up by $10 billion from a year earlier. Concerns that the rising levels of debt were related to doubtful investments in infrastructure were a harbinger of the problems that would emerge in the power sector at the end of the decade (Wells 2007).

These issues were taken up by Van der Eng (1993: 4) who discussed the insecure supply of electric power. Van der Eng noted that ‘projected economic growth during Repelita VI will require an enormous expansion of electricity generation capacity, which the state electricity company will be unable to deliver. The involvement of private investors is crucial …’ He noted that the government was looking for large-scale investments from the private sector of around $11 billion during the 10-year period from 2003. Van der Eng reported that there were plans for about 100 private sector electricity projects, including the large plants planned for Paiton in East Java. But as had often been the case in the past, private sector investment had not proceeded quickly ‘because there is as yet no satisfactory outcome to negotiations over prices.’ Van der Eng (1993: 26) observed that ‘… if the price PLN pays itself is too low, electricity generation will not be profitable – and therefore not of interest – to private firms.’

The analysis by Kristov (Kristov 1995) served to reinforce the views that had been expressed by other commentators earlier in the decade. Kristov observed that (1995: 73), ‘Price has become a controversial issue – both the retail price private producers would charge the public, and the wholesale price at which they would sell in bulk to the state utility, PLN.’ After a careful analysis, Kristov concluded that the cost of supplying electric power during most of the 1980s was over 40% higher than the PLN’s average sales revenue.

The second key development to affect trends in the power sector during the decade was the 1997/98 Asian financial crisis. The crisis caused, amongst other things, a sharp depreciation in the value of the rupiah. The depreciation sharply impacted on the revenue flows and balance sheets of many companies across Indonesia. Nowhere was this more marked than in the power sector where, as Wells explained in a detailed analysis of the problems (Wells 2007), it became clear that the strategy of the early 1990s of relying on private foreign investment to fund the expansion of power plants was seriously flawed.

In the event, the difficult experience during the 1997/98 crisis had a lasting impact on the approach of policymakers towards infrastructure policy during the first decade after 2000. On coming to office in 2004, the SBY administration responded to the infrastructure shortages in several ways. One approach of the new administration was to set specific targets for expansion for each sector. In the electric power sector, for example, two 10,000 MW Fast Track Programs to expand generating capacity were announced, the first (FTP-1) in 2006 and the second (FTP-2) in 2010. This approach of setting targets, however, was of limited success. In the event, there were delays and both electricity FTPs proceeded rather more slowly than expected.

Telecommunications

Telecommunications has been one of the most dynamic sectors in Indonesia during the past 50 years. Developments in the sector have gone through four distinct phases.

In the first phase during the 1970s and 1980s, telecommunication facilities expanded rapidly as new technologies such as microwave systems were used to expand links across the country. Supply struggled to keep up with demand. In the main urban areas such as Jakarta and Bandung, shortages of telecommunication facilities were acute (Grey 1984). Levels of use of both local telephone calls and international calls increased rapidly (Table 7).
Table 7: Telephone calls, 1970-2013

<table>
<thead>
<tr>
<th></th>
<th>Local pulsa (billion)</th>
<th>International (million minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls (million)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>400</td>
<td>1</td>
</tr>
<tr>
<td>2010</td>
<td>8,200</td>
<td>2,362</td>
</tr>
</tbody>
</table>

Average annual growth rates (%)

<table>
<thead>
<tr>
<th></th>
<th>70-75</th>
<th>75-80</th>
<th>80-85</th>
<th>85-90</th>
<th>90-95</th>
<th>95-00</th>
<th>00-05</th>
<th>05-10</th>
<th>70-10</th>
<th>95-00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.6</td>
<td>32.0</td>
<td>8.8</td>
<td>13.4</td>
<td>22.3</td>
<td>-8.1</td>
<td>4.4</td>
<td>-14.2</td>
<td>7.8</td>
<td>21.1</td>
</tr>
<tr>
<td></td>
<td>23.8</td>
<td>22.7</td>
<td>20.9</td>
<td>27.7</td>
<td>21.4</td>
<td>10.6</td>
<td>8.9</td>
<td>35.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Estimates for 2001-2004 are extrapolated from 2000 and 2005 assuming a constant growth rate of 8.9% over the period.

Source: As for Table 1. Estimates for 2001-2004 are interpolated between 2000 and 2005 assuming a constant growth rate of 8.9% over the period.

The second phase began in 1989 when, reflecting the broad trend to encourage private sector participation in infrastructure, private participation was permitted in the fixed-line sector through public-private partnership (PPP) arrangements (Lee and Findlay 2005). In the event, this phase of market-oriented reform was not successful. The contract-based PPP system provided only short-term solutions to the problem of acute lack of capacity. A third period of reform began in 1999 when a new Telecommunications Law (Law 36/1999) established a revised framework for operations. A duopoly structure was created in fixed-line operations accompanied by a wider pro-market approach. These reforms acknowledged the importance of competition and of a sound regulatory regime although there were still limits on market entry.

A fourth and very dynamic stage has emerged in recent years under the framework established in 1999. New telecommunication technologies have flooded into Indonesia within a highly competitive market structure. Local firms such as Telkomsel, Indosat and Mobile-8 (Fren), supported by multinational companies such as Samsung, LG and Nokia, are prominent in the market offering all kinds of discounts on mobile phones and advertising widely across the country. Customers are moving away from the old fixed-line system (Table 7 shows that the use of local fixed-line pulsa calls dropped sharply between 2005-2010) and have taken up mobile phones with enthusiasm. Internet use has expanded rapidly as well (Table 8).

These recent developments illustrate the gains that can come in the infrastructure sector when an appropriate regulatory regime is established. Perhaps the main lessons from the explosive burst of growth in telecommunications in Indonesia during the past decade are the importance of encouraging markets to work, of the need to facilitate the entry of new technology, and of encouraging new investment.
market design is needed, relying on an effective regulatory regime, to enable infrastructure capital-intensive sectors such as telecommunications to develop quickly (Magiera 2011).

**Table 8: Changes in access to telecommunications**

<table>
<thead>
<tr>
<th></th>
<th>Percentage of households with:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fixed line phones</td>
</tr>
<tr>
<td>2009</td>
<td>10</td>
</tr>
<tr>
<td>2012</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: As for Table 1.
Water, sanitation and irrigation

Management of water and sanitation is one of the most pressing issues in infrastructure policy in Indonesia. Yet it is extremely difficult to tackle the problems in the sector because attention to cost recovery is often ‘considered irrelevant’ (Asian Development Bank 2012: 8). The results are widespread. Access to potable water from municipal water supplies is extremely limited. The consequence is that elite consumers rely largely on expensive bottled water. Frequent flooding occurs in both urban and rural areas during rainy seasons. Adequate public sanitation services are almost non-existent in many parts of Indonesia. And irrigation policy poses many challenges.

During the 1970s there were some improvements in the municipal water supply sector. However, as was the case with other parts of the infrastructure sector, institutions in the formal sector such as modern hotels, large factories, and some elite residential establishments placed little reliance on the public system, preferring to install their own private systems.

During the next few decades there were attempts to improve the public water supply system by strengthening the extensive urban water supply network of regional water supply establishments known as PDAMs (Perusahaan Daerah Air Minum, of which there were over 300 establishments). But the PDAMs were constrained by bureaucratic controls and enforced low prices. Across Indonesia, a large share of the population opted out of any relationship with the public system choosing to rely on informal water suppliers and on natural supplies of water. In rural areas, even in small towns, much of the population depended on springs and wells. This is hardly surprising because often simple local systems have provided better and more cost-effective supplies of water than larger systems (Perkins 1994).

Attention to large scale sanitation services has been similarly lacking for many decades. Communities resist paying for services which they have come to expect public agencies to provide for free. Government agencies have therefore found it difficult to raise monies to fund public sewerage systems. In urban areas, private septic facilities are widely used. But the installation and maintenance of these facilities is poorly regulated. Serious externalities in the form of environmental and health problems are liable to occur.

Frequent flooding during rainy seasons is another major water management issue. As an example, regular large-scale flooding occurs in Jakarta. Every few years, flooding in low-lying areas of Jakarta leads to up to one million people needing temporary refuge until the flooding subsides and they can return to their homes. Widespread flooding in other areas of Indonesia, which receives less publicity, imposes large scale social and economic costs.

Management of irrigation and drainage systems has been a vital part of the agricultural economy since the 19th century. After Independence in 1945, attempts were made to expand the irrigation system but existing systems were neglected. The result, as Booth has noted (Booth 1977a: 50), was that ‘the systems laid out by the colonial government during the prewar period fell into an almost unchecked decline between 1940 and 1968.’ During the 1970s agricultural development programs supported by both foreign donors and the Indonesian government provided funding to rehabilitate and expand irrigation networks, particularly in Java and Bali. Special attention was also given to the expansion of irrigation facilities in the outer islands to support the national transmigration programs being promoted at the time.

Significant efforts were made during the 1980s to expand the irrigation system. Between 1969 and 1994 irrigation systems serving 2.5 million ha were rehabilitated and 1.7 million ha of new irrigation systems were developed. However financing of maintenance activities was a continuing problem throughout the
period. Around 60% or more of operation and maintenance budgets were reported as spent on staff costs leaving little available for routine maintenance (Vermillion, Lengkong and Atmono nd: 2). More recently, since the 1990s discussion about investment priorities in the irrigation sector has been closely linked to plans for food security. One view is that food security can be strengthened by the development of major food-growing areas in the outer islands. But the economic feasibility of large investments in new irrigation projects in the outer islands depends, in turn, on the economic feasibility of new food estates outside of Java. Under these circumstances, the development of large irrigation projects of this kind is fraught with uncertainty.
Issues

It is clear from this survey of developments across the infrastructure sector during the past four decades that a wide range of issues need to be considered in formulating infrastructure policy in Indonesia. It is useful to consider the main issues under three main headings, demand, supply, and regulatory issues (Figure 1 above).

Demand

On the demand side, one issue policymakers in Indonesia have rarely been prepared to address is the set of expectations held across the community about the supply of infrastructure services.

One of the recurring ideas underpinning the expectation of low prices from utilities is the idea that utilities should not be run ‘for profit’ but, rather, they should ‘serve the public.’ That is, that the operations of utilities should serve social goals. Quite often, populist political leaders have encouraged consumers to expect that utility services (often referred to as a ‘basic need’) will be provided at subsidized prices. The source of the subsidy is rarely directly addressed but it seems clear that advocates of low prices believe that the subsidies should be paid for by ‘the government’, or perhaps covered by the (mostly) state-owned utilities providing the infrastructure services, or perhaps (in one way or another) by the private sector.

A related issue to the expectations that utilities should serve the public is the distinction between the provision of services to larger and smaller consumers. The market for utility services for small consumers in Indonesia is very large. Numerous authors writing in BIES articles about the infrastructure sector have referred to the various challenges of providing services to consumers in the smallscale and informal economy (Dick, 1975a; Dick 1975b; McCawley 1978; Dick 1981a; Dick 1981b; Gibson 1986; Hughes 1986; Munasinghe 1988; Perkins 1994). However the larger utilities in the formal state-owned sector find it very difficult to reach out to this market. Until formal institutions such as the large state-owned utility enterprises can design programs to reach out to the informal economy, they will continue to be seen as alien to the needs of ordinary rakyat (people) consumers.

Supply

The issues on the supply side which constrain growth in the infrastructure sector in Indonesia are numerous. There is no single constraint which holds back the supply of infrastructure. Rather, there is a combination of problems which, together, act to constrain growth.

Finance. There are, first, financial issues. On one hand, investors and financial specialists in Jakarta often say that ‘money is not the problem’ in holding back infrastructure development in Indonesia. What they have in mind in saying this is that there is, they argue, usually no problem in raising funds for infrastructure activities in Indonesia – sometimes from banks, and sometimes through bond issues – provided borrowers provide appropriate guarantees to the financiers. They argue that provided technical problems, such as project design and access to land, and pricing arrangements are clarified in a satisfactory way, then finance will be forthcoming from the markets.

The detailed survey of Indonesia’s experience with private investment in the power sector in the 1990s by Wells (2007) provides a more sceptical view. Wells traces the processes between 1990 and 1997 by which the PLN signed 26 agreements with private investors for generation projects. The investments represented around 11,000 MW and provided at least $13 billion of investment. But when the Asian financial crisis struck Indonesia in 1997, arrangements for the project deals quickly ran into trouble.
because revenue flows for the PLN were in rupiah while obligations were in $US. Extended contract disputes broke out when PLN tried to renegotiate the terms of the deals agreed to with foreign investors. Wells notes that the whole process of raising private finance, and entering into long-term arrangements with foreign investors, was a very difficult one for the PLN. He concludes (2007: 362) that ‘…it is important to remember that private ownership of generating capacity is not the only possibility, nor should it be a goal in itself. … If Indonesia can do no better in new arrangements, privatization is simply too costly. Borrowed funds and state ownership, with all their problems, would be preferable.’

Technical issues. A second key challenge is technical issues. It is these technical issues that financiers have in mind when, talking of investment in the infrastructure sector, they say ‘money is not the problem.’ There is no doubt that there is a shortage of well-prepared and well-documented projects available for investors to examine in Indonesia.

The problem became very clear at the time of the several infrastructure summits during the period of the SBY administration. When investors attended summit presentations, often the details of projects provided were very slim. In some cases, web sites purporting to provide data on large projects turned out to be blank when investors tried to access project data. In the event, the response to the summits was disappointing. Hardly any of the projects offered at the first summit were taken up and at the second summit ‘although potential investors … generally showed wary optimism, most opted for a wait-and-see approach’ (Lindblad and Thee 2007: 26)

A lack of detailed project data was also apparent in the 2011-2025 Masterplan for the acceleration of economic development issued in 2011 (Republic of Indonesia 2011). The Masterplan provided a strategic framework for infrastructure investment across Indonesia with an emphasis on the need to support the development of economic corridors. And although a pipeline of possible projects was listed in the Masterplan, detailed supporting project proposals were often not available in the implementing sectoral ministries.

A related technical issue concerns access to land. It is widely recognised by policymakers in Indonesia that land problems often delay project construction. In recent years, a range of steps including the promulgation of a new law has been taken to try to address the problems of access to land. But implementation of the law has proved difficult. Legal clarity in obtaining access to land is often lacking. Henderson, Kuncoro and Nasution (1996) discussed land problems in their survey of the development problems of Jabotabek (Jakarta, Bogor, Tangerang, Bekasi). They pointed to very poor land market institutions of ‘weakly defined property rights particularly for traditional low income residents’ and ‘complete lack of active land use planning’ as major problems.

It seems clear that problems of uncertain land title are a major disincentive for investors. Investors are unlikely to be ready to commit large sums of money to long-term investment in projects when legal title to the land for the project is unclear.

Governance and management. It is well-known that there are sometimes problems of governance and management in various parts of the utility sector in Indonesia. Managers of utilities sometimes come under strong political pressure of various kinds, and in recent years some prominent senior managers of state-owned utilities have been found guilty of corrupt practices. These problems received regular comment in various BIES articles, often in the SRDs but sometimes in other surveys (Mardjana 1995).

Apart from broad issues of the management of utilities which often attract critical comment, more detailed aspects of project implementation and organisation have often delayed project implementation. Thompson and Manning (1974: 72) pointed to a range of problems of this kind when they reported that one of the most serious problems the World Bank faced in implementing projects in Indonesia in the early
1970s related to procurement. A wide range of detailed obstacles -- uncertain tax provisions for contractors, poor coordination between government agencies, sudden changes in import and customs procedures, inflexible budget procedures for Indonesian government agencies, and so on -- all worked to hinder the way in projects could be completed.

Dick emphasized a different set of management issues when he pointed to the need for improvements in organization and regulation in the shipping industry (Dick 1985a: 111, 113). He argued that too often, there was a tendency to invest in physical capital in ports rather than consider how both organization and regulatory practices could be improved. Political leaders and senior officials often favoured improvements in physical capital because they were visible and could be pointed to as tangible signs of achievements. Improvements in organization, however, required time and patience, and were less likely to yield easy-to-see benefits. He also noted that the regulatory processes in the industry were often protectionist and discouraged the types of structural reform which would increase productivity. Dick concluded that ‘A more efficient interisland shipping industry therefore requires not so much the commitment of more resources but better organisation to improve the utilisation of existing resources.’

More recently, Ray (2003: 262) has noted that the shipping sector in Indonesia continues to be hampered by low levels of efficiency in ports caused by a lack of competition in the ports sector.

Environmental issues. In principle, the arguments for giving more emphasis to environmental and social issues in planning for expansion in the infrastructure in Indonesia sector are strong. But in practice, issues of this kind have often received relatively little attention in official circles.

One of the most important dilemmas facing energy planners in the power sector in Indonesia is to what extent Indonesia should aim to rely on coal for energy security (Narjoko and Jotzo 2007: 163). On one hand, coal is currently the cheapest option for generating electricity. Further, the processes for the construction and management of coal plants are well-known and relatively easy to implement. On the other hand, coal brings a range of environmental problems. The coal used within Indonesia for power generation is usually low-grade coal, the cheapest but most polluting fuel available. Further, some of the mined coal reserves are in protected forests. Over time, power plants using this coal would worsen air pollution and emit much larger amounts of carbon dioxide than other power supply options.

Narjoko and Jotzo suggested that the main alternative to the use of coal for baseload power generation in Indonesia are geothermal and nuclear. But increased reliance on each of these possibilities poses problems as well so careful decisions will be needed in the electric power sector as the demand for energy grows.

Regulatory matters

Issues of regulation refer to the rules of the game (aturan main) which set guidelines for activities within a sector or an industry. The main ones which affect the infrastructure sector in Indonesia are political and informal pressures, the formal legal and regulatory arrangements, and pricing controls.

Political and informal pressures. The literature on the interrelationship between the infrastructure sector and politics in Indonesia is relatively scarce. Davidson (2015) has recently discussed aspects of political factors influencing the roads sector but this aspect of governance has not been a focus of studies in the BIES. Dick (1985a: 113) has discussed the role of lobby groups in the shipping sector, expressing concern about the results for efficiency. One of the main lobby groups in the industry, the Shipowners’ Association, was protectionist and lobbied to preserve the ‘rights’ of pribumi companies while giving no support to the expansion of strong and progressive (often non-pribumi owned) companies. The result was that the regulatory systems in the shipping industry tended to discourage more efficient firms from expanding while helping the least efficient firms to remain in business.
Legal aspects of regulation. There is a very large number of laws and, especially, ministerial decisions and other regulations that apply to the infrastructure sector. As is the case with other parts of the Indonesian legal system, implementation of the laws and regulations is fraught with difficulty and confusion. And the difficulties caused by the different views which may be found in different parts of the legal system were dramatically illustrated when, in 2004, the newly-established Constitutional Court\(^2\) took it upon itself to issue a decision on the constitutional legality of matters in the electric power sector.

The difficulties with the Constitutional Court arose following the passage of new Law No. 20/2002 which provided the government with powers to liberalise the power sector and allow the entry of private firms to produce and sell power to the public. A group consisting of labour workers, former PLN employees, and NGOs who opposed the unbundling of PLN’s generation, transmission and distribution operations challenged the legality of the new law. They argued that the new law violated Article 33 of the Constitution which provides that ‘economic sectors which are important to the state and crucial for the welfare of the people are controlled by the state and must be developed to give the maximum benefit to the people.’ Following hearings, in December 2004 the Constitutional Court annulled the new law and reinstated the earlier Law No 15/1985. (Saraswati 2004). With the annulment, the PLN again became the sole operator, while also acting as regulator, of distribution in the electricity sector.

The unexpected intervention of the Constitutional Court into the electric power sector in 2004 immediately widened the regulatory risks in many sectors of the economy. The use, particularly, of the vaguely worded Article 33 of the Constitution to underpin the judgement greatly widened the opportunities for special interest groups to oppose reforms that, possibly, might reduce the role of the state in any particular sector. Soesastro and Atje (2005: 30) concluded that ‘the potential implications of this for the future of the Indonesian economy are far-reaching.’

The underlying sympathy for economic nationalism which appears to underpin rulings of this kind has distinct anti-market tones. Many observers have noted that there is a strong feeling in Indonesia that there should be state control of key sectors. Commenting on the situation Soesastro and Atje (2005: 30) said, ‘The state should indeed be seen as custodian of Indonesia’s natural resources, but there is no reason why it should not exercise this function indirectly, through supervision and regulation …’

Pricing. The regulation of pricing in the infrastructure sector is widespread in Indonesia. The overall effect is to impose widespread price suppression in the sector. Price suppression has many consequences for both demand and supply so this approach has extremely important implications for management of the sector, and for all of the financial flows through the sector.

Expectations that regulated utility prices will be kept low have been widely held across the public, and encouraged by populist political leaders, ever since Independence in 1945. But senior economic advisers in government argue that firm ceilings are needed on the budgetary costs of subsidies. In practice, faced with difficult political and economic tradeoffs, the views (and the resolve) of policymakers swing to and fro. At times, when subsidies have become so large as to be a significant burden on the national budget or on state-owned utilities, policymakers have expressed their resolve to reduce subsidies. Familiar arguments are rehearsed: that the burden of the subsidies on the national budget is too large, and that in any case, the subsidies are undesirable because the benefits do not reach the poor. Sometimes policymakers have been successful in increasing prices for a period, although the real impact of price increases has usually been subsequently eroded over time. And sometimes policymakers have increased prices, but only to reduce them again in the face of public pressure.

\(^2\) The Constitutional Court in Indonesia was established in 2003.
What is missing in the public policy debate is a clear and direct explanation to the Indonesian people that – one way or another – it is they who must pay the cost of the supply of infrastructure services in Indonesia. There are various ways of paying. The payments can be direct through systems of user charges, or indirect in a variety of ways through various combinations of taxation charges. But the central point which needs to be brought into the public policy debate is that – one way or another – it is consumers of infrastructure services within Indonesia who must pay.

What has also been missing in much of the public policy debate in Indonesia is a discussion of the consequences of the overall implications of price suppression in infrastructure. The topic has been discussed in many articles in the BIES, beginning with the earliest issues of the journal and, subsequently, on many other occasions. In 1970 McCawley discussed the price of electricity (McCawley 1970) as did Kristov (1995). Other authors who have taken up the matter in some detail include Booth who discussed water charges for irrigation (1977: 58), Dick in several articles on urban public transport (1981a and 1981b), Conroy and Drake (1990: 15-16), Muir (1991: 23), Soesastro and Atje (2005: 27-29) who provided a careful discussion of energy and pricing issues, and Kong and Ramayandi (2008: 16).

Conclusion

This survey set out to, first, provide an overview of the main developments in the infrastructure sector in Indonesia during the past five decades, and second, consider what the main policy and management bottlenecks in infrastructure appear to be. The overview indicates that, in broad terms, considerable expansion has taken place in most parts of the infrastructure sector but that the needs both for further expansion and for attention to maintenance of existing facilities remain acute.

In many ways the policy and management bottlenecks in the infrastructure sector are a microcosm of the problems of the overall management of government in Indonesia. Coordination of policy across the silos of the infrastructure sector is difficult; it is hard for the private sector and the public sector to work together; clearer rules of the game and regulatory arrangements are needed. None of these problems are new, either within the infrastructure sector or within the public sector overall in Indonesia.

Many of these issues presented major problems within government in Indonesia in the 1950s and 1960s. They continue to present major problems today. Boediono (2005) discussed the central issues of public sector management in Indonesia when he emphasized the importance in government of having a clear strategy, of implementing the strategy in a consistent way, and of the need to strengthen law enforcement. Boediono was writing about the overall management of the Indonesian economy but these principles also identify the steps that need to be taken to strengthen infrastructure policy in Indonesia.

REFERENCES


