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# Infrastructure and economic development

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## **Abstract**

The importance of the infrastructure sector to the process of economic growth and development has long been recognized and understood by scholars and policymakers. Without adequate infrastructure, modern commerce characterized by production specialization and exchange across markets would grind to a halt. Economic globalization would not take place without the reduction in communication and transportation costs brought about by the progress achieved in the development of infrastructure within and across countries. Thus, any attempt at understanding Malaysia's past experiences in economic development thus requires an analysis of the role that the infrastructure has played. The purpose of this chapter is to provide an analysis of how the infrastructure sector has developed in Malaysia and the role it has played in the country's development. In this chapter, the term 'infrastructure' refers to economic infrastructure, and principally covers transport, energy, information and communication technology, drinking water and sanitation.

## **Keywords**

development, infrastructure, economic

## **Disciplines**

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**Chapter 11**

**INFRASTRUCTURE AND  
MALAYSIAN ECONOMIC DEVELOPMENT**

Cassey Lee

**INTRODUCTION**

The importance of the infrastructure sector to the process of economic growth and development has long been recognized and understood by scholars and policymakers. Without adequate infrastructure, modern commerce characterized by production specialization and exchange across markets would grind to a halt. Economic globalization would not take place without the reduction in communication and transportation costs brought about by the progress achieved in the development of infrastructure within and across countries. Thus, any attempt at understanding Malaysia's past experiences in economic development thus requires an analysis of the role that the infrastructure has played. The purpose of this chapter is to provide an analysis of how the infrastructure sector has developed in Malaysia and the role it has played in the country's development. In this chapter, the term 'infrastructure' refers to economic infrastructure, and principally covers transport, energy, information and communication technology, drinking water and sanitation.

**INVESTMENTS IN INFRASTRUCTURE**

The Government's policy on investment in the infrastructure sector during the early years of the country's independence (after 1957) up to the 1970s was mainly focused on ensuring that infrastructure capacity was adequate to meet rising demand from a growing economy. During this period, the sector's share of the development expenditure hovered around 20% (Table 1).

The turning point for infrastructure development began in the mid-1970s with the Third Malaysia Plan 1976-1980, which saw a significant increase in the sector's share of total development expenditure from 12% to 23% (3MP 1976). What influenced this drastic increase in allocation in development expenditure on infrastructure in the mid-1970s? One possible explanation for this change was the New Economic Policy (NEP). The NEP was implemented beginning in the early 1970s as a response

to the racial riots that occurred in May 1969. The main aim of the policy was the enhancement of national unity through a two-pronged approach, namely, poverty eradication and wealth redistribution across different ethnic communities.

**Table 1. Public Development Expenditure on Infrastructure, 1965-2010**

(Current Prices, RM Million)

<b>Sector</b>	<b>1MP (1966- 70)</b>	<b>2MP (1971- 75)</b>	<b>3MP (1976- 80)</b>	<b>4MP (1981- 85)</b>	<b>5MP (1986- 90)</b>	<b>6MP (1991- 95)</b>	<b>7MP (1996- 2000)</b>	<b>8MP (2001- 05)</b>	<b>9MP (2006- 10)</b>
Transport	544.9	1234.0	2842.8	12966.0	11216.4	11594.7	20484.2	30936.5	30304.4
Communications	152.0	174.9	1152.1	5034.0	4304.3	71.0	39.6	NA	NA
Electricity	530.6	122.7	1205.3	4828.7	7013.7	17580.8	26107.2	27960.9	29783.9
Oil & Gas					2923.1	10814.8	30400.0	48300	43800
Water Supply	150.8	163.1	377.2	3393.6	2467.0	2671.9	2382.7	3882.9	8203.6
Rural Water								733.9	1206.5
Sewerage	9.6	8.6	69.1	393.9	57.2	124.8	665.3	1347.9	3132.8
Total Development Expenditure on Infrastructure	1387.9	1703.3	5646.5	26616.2	27981.7	42858.0	80079.0	113162.1	116431.2
Total Development Expenditure	6887	14046	24243	62743	35300	54705	99037	170000	200000
Infrastructure's % Share of Development Expenditure	20.2	12.1	23.3	42.4	79.3	78.3	80.9	66.6	58.2

**Notes:** MP: Malaysia Plan. 9MP figures refer to allocation and not actual expenditure  
Prior to 8MP, expenditure figures on rural water supply included under water supply  
NA: Not available.

**Source:** Malaysian Five Year Plans, various years.

Under the Second Malaysia Plan 1971-1975, the role of infrastructure (especially the transport sector) in realizing the goals of the NEP were defined in terms of the dispersion of economic activities to less developed areas (2MP 1971). Thus, aside from new land development, significant increases in allocation were observed for the transport sector especially for road development. This trend continued under the Third Malaysia Plan 1976-1980 (3MP 1976).

An even larger increase in allocation was made to the infrastructure sector in the Fourth Malaysia Plan 1981-1985 (4MP 1981). Means has argued that the Hussein Onn administration (1976-81) had greater resources than the Abdul Razak administration (1970-76) due to the growth of the country's petroleum industry (Means 1991). The Fourth Malaysia Plan would have been formulated under the Hussein Onn administration but implemented under the Mahathir administration (1981-2003) during a time when even more resources were available. This is borne out by statistics on the sources of federal government revenues from 1970 to 1985 (Table 2). During this period, the share of petroleum-related revenues increased from zero in 1970 to about 25% in 1985. Petroleum-related revenues accounted for 40% of the increase in revenues raised between 1970 and 1985.

**Table 2. Sources of Federal Government Revenues, 1970-90**  
(RM Million)

Type of Tax	1970	1975	1980	1985	1990	1995	2000
Direct Taxes	701	2021	5664	9777	10394	22699	29156
Individuals	168	438	2521	3824	2667	6203	7015
Companies	489	1166	983	1855	4124	11706	13905
Petroleum	0	322	1736	3348	2884	2185	6010
Petroleum Royalties	0	78	345	566	2927	3810	6384
Others	44	17	79	184	719	2605	2140
Indirect Taxes	1299	2555	7131	8887	10814	18971	18017
Export Duties Petroleum	0	0	677	1547	1910	751	999
Others	1299	2555	6454	7340	8904	18220	17018
Non Tax Revenue	400	541	1131	2805	6506	8469	14097
<b>Total</b>	<b>2400</b>	<b>5117</b>	<b>13926</b>	<b>21469</b>	<b>27714</b>	<b>50139</b>	<b>61270</b>
Petroleum-Related Revenues	0	400	2758	5461	7721	6746	13393

% Share of Petroleum-Related Revenues	0.0	7.8	19.8	25.4	27.9	13.5	21.9
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Source: Five Year plans, various issues.

In 1985, the Malaysian economy went into a recession when its GDP contracted by 1.1%. This was followed by a slow recovery in 1986 when the economy grew by only 1.2%. Even though the period of economic slowdown was a relatively short one (as the economy grew at a rate of more than 5%), total development expenditure declined to only RM36 billion during the Fifth Malaysia Plan 1986-1990 (5MP 1986). Despite the decline in total development expenditure, infrastructure sector's share increased from 42% in the 4MP to 79% in the 5MP. This was primarily due to the heavy investments undertaken in the transport (e.g. North-South Expressway and new Klang Valley expressway) and energy sectors (Paka and Kapar power stations) as well as reductions in expenditures on administration and security.

The economic slowdown in the mid-1980s had another, perhaps more significant, impact on the infrastructure albeit of a structural manner. Faced with twin deficits (in merchandise and services) and mounting external debt during this time, the Malaysian Government responded by accelerating its privatization programme. The objectives of the programme included reduction in the administrative and financial burden of the Government, improvement in service delivery and increase the participation of the bumiputera community in mainstream economic activities. For the infrastructure sector, this meant greater private sector participation. This aspect has been critically analyzed by various authors (see Jomo 1995; Tan 2008; Naidu & Lee 1997; and the chapter in this volume by Jomo & Tan).

Prior to the late-1980s, most of the investments in infrastructure were primarily undertaken by the public sector. Malaysia embarked on an ambitious privatization program in the infrastructure around 1992/93 during the Sixth Malaysia Plan 1991-1995 (6MP 1991). The programme was extensively carried out in various infrastructure subsectors such as electricity, telecommunications, water, expressways, ports and airports (see Table 3 for a few of the key privatization exercises). Data on investments involving private sector participation in the infrastructure sector indicates that these investments reached very high levels in the water supply sector in 1993, the energy sector during 1994-95, the transport sector during 1994-97, and the telecommunications sector during 1995-96 (Table 4).

**Table 4A. Selected Major Privatization Exercise in Infrastructure Sector**

<b>Period</b>	<b>Project</b>	<b>Company</b>	<b>Mode</b>	<b>Value (RM million)</b>
<b>1982-85</b>	Penang Bridge	Penang Bridge Sdn Bhd	BOT, 25-year concession	1,250
<b>1988-95</b>	North-South Expressway	PLUS Expressways Berhad	BOT, 30+20 - year concession	5,950
<b>1986</b>	Klang Container Terminal	Klang Container Terminal – owned by PKA (49%) and Konnas Terminal Klang (51%)	Lease and Sale	
<b>1990</b>	Telecommunications	Telekom Malaysia Berhad	Partial Equity Sale	
<b>1992</b>	Electricity Supply and Distribution	Tenaga Nasional Berhad	Partial Equity Sale	29,850
<b>1993-97</b>	Paka and Pasir Gudang Power Plant	YTL Power Generation Sdn. Bhd	BOO	3,500
<b>1993-97</b>	Lumut Power Plant	Segari Energy Ventures Sdn. Bhd.	BOO	3,500
<b>1993-95</b>	Kuala Langat Power Plant	Genting Sanyen Sdn Bhd.	BOO	1,000
<b>1993-95</b>	LRT 1- STAR	Taken over by Government (SPNB) in 2002 for RM3.3 billion	BOT, 30+30-year concession	3,420
<b>1994-98</b>	LRT 2 – Putra	PUTRA-LRT (100% owned by Renong Bhd.)  Taken over by Government (SPNB) in 2002 for RM4.5 billion	BOT, 30+30-year concession	5,400
<b>1994</b>	National Sewerage System	Indah Water Konsortium  Taken over by	28-year concession	

		Government in 2000 for RM1.625 billion		
1995	Johor Port	Johor Port Berhad	Equity Sale	1,372
1997-2004	KL Monorail	KL Monorail Systems Sdn. Bhd.  Taken over by Government (SPNB) in 2007 for RM4.5 billion	BOT, 40-year concession	1,180

Source : Naidu & Lee 1997. Updated by author.

**Table 4B. Investment with Private Sector Participation in Infrastructure Projects, 1990-2007**

(USD Million)

Year of Investment	Energy	Telecom	Transport	Water & Sewerage	Total	Total (RM million)
1990	0	870	0	0	870	3,045
1991	0	0	0	0	0	0
1992	1,350	0	160	284	1,794	6,279
1993	1,330	0	814	2,558	4,702	16,457
1994	3,182	748	2,011	790	6,730	23,555
1995	1,200	1,012	1,889	10	4,111	14,389
1996	0	1,033	3,158	0	4,191	14,669
1997	215	673	2,182	0	3,070	10,745
1998	0	175	592	0	766	2,681
1999	195	296	314	0	805	2,818
2000	0	276	1,278	3,965	5,519	19,317
2001	1,765	419	684	0	2,868	10,038
2002	12	477	0	16	506	1,771
2003	2,050	436	1,570	0	4,056	14,196



2004	1,210	1,188	342	2,521	5,261	18,414
2005	1,600	479	587	0	2,666	9,331
2006	203	496	531	0	1,230	4,305
2007	0	634	423	0	1,057	3,700
<b>Total</b>	<b>14,313</b>	<b>9,211</b>	<b>16,536</b>	<b>10,144</b>	<b>50,204</b>	<b>175,714</b>

Note: Exchange rate used: USD1 = RM3.5.  
Source: <http://ppi.worldbank.org/index.aspx>

The total investments with private sector participation during the 1990-2007 period is estimated to be around RM175 billion. Today, after more than two decades since the privatization programme began, not all of the privatization exercises have been successful. A number of privatized entities were re-nationalized due to financial difficulties. These include the urban transportation system in Kuala Lumpur and national sewerage system (see Jomo & Tan's chapter).

## **EXPANSION OF INFRASTRUCTURE**

The state of the infrastructure sector in Malaysia was generally considered to be adequate around the time of the country's independence in 1957. This was the view of the World Bank mission that visited Malaysia in 1954. This assessment was made with reference to meeting the demand for infrastructure from the modern sector that was primarily concentrated along the west coast of Peninsular Malaysia. As such, infrastructure development was very uneven across different states and between rural and urban areas at this point of time. This was to change with the implementation of the New Economic Policy (NEP) which began with the Second Malaysia Plan. For the infrastructure sector, the implementation of NEP meant that more resources were allocated to the infrastructure sector with the aim of improving access to water and electricity in the rural areas.

In terms of the overall state of infrastructure, the significant increase in development allocations during the Fourth Malaysia Plan 1981-1985 (4MP 1981) resulted in rapid expansion in a number of infrastructure facilities (Table 5). During this period, the road network expanded by 49%, ports' handling capacity by 122%, electricity generation capacity by 76%, and water supply production capacity by 58%. This trend of rapid growth in infrastructure capacity continued to take place in subsequent years. Today, the rural population in most of the states in Malaysia (with the exception of perhaps Sabah and Sarawak) have relatively good access to water and electricity (Table 5). For other sectors such as telecommunications, technological change in the form of the introduction of mobile telephony has help increased access to telecommunication services in both urban and rural areas. Today, the mobile telephony penetration rate exceeds that of fixed line telephony. The main challenge

that remains for the infrastructure sector today is not one of capacity adequacy but the efficiency and quality of service delivery. This is affected, to some extent, by the regulatory framework in place in the sector.

**Table 5. State of Infrastructure Development, 1965-2005**

<b>Roads</b>	<b>1965</b>	<b>1970</b>	<b>1975</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>
Length of Roads (km)	15356	21995	24037	26219	38973	53984	61380	66390.8	77673.4
Road Density (length/area)					0.12	0.16	0.19	0.20	0.24
Road Service Level (length/population)					2.46	3.02	2.96	2.83	2.97
<b>Railways</b>									
Length of Tracks (km)	2115			2218	2222	2222	2222		
<b>Ports</b>	<b>1965</b>	<b>1970</b>	<b>1975</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>
Handling Capacity (mil. tons)				25.5	56.6	120.5	174.1	324.9	443.3
Vol. Of Cargo Handled (mil tons)						103.4	152.3	223.9	369.4
Containerized Cargo (mil. TEUs)							2.1	4.9	12.1
<b>Telecommunications</b>	<b>1965</b>	<b>1970</b>	<b>1975</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>
No. fixed line subscribers (mil)		0.1	0.2	0.4	1.0	1.6	3.3	4.6	4.4
No. Mobile subscribers ('000)						78	700	5000	19500
Internet Dial-up subscribers (mil)								1.7	3.7
Internet Broadband Subscribers (mil)								0.5	3.7
<b>Electricity</b>	<b>1965</b>	<b>1970</b>	<b>1975</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>
Generated capacity (MW)	336	836	1022	2385	4197	5242	10835	14291	19217
Rural coverage (%)						80	92	93	95
<b>Water supply</b>	<b>1965</b>	<b>1970</b>	<b>1975</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>
Production capacity (mld)	591	1118	1672	2642	4162	6103	9480	11917	14226
Non Revenue Water						43	40	40	38
Urban coverage				89	93	96	96	97	98
Rural coverage				43	57	67	82	85	92

**Notes** km : kilometres  
Mld : million litres per day  
MW : megawatts

### Regulatory Reforms in Infrastructure

Prior to privatization, infrastructure services were provided by government departments or statutory bodies which meant that the infrastructure sector was self-regulated. With privatization, a number of sectoral regulatory agencies have been established such as the Malaysian Communications and Multimedia Commission (MCMC) in 1988 and Energy Commission (EC) in 2001. These regulatory agencies continue to operate under the jurisdiction of ministries where many of the important regulatory decisions, particularly those that may impact on public sensitivities such as tariff revisions,

require ministerial approval. In many instances, such decisions were also deliberated at the Cabinet level.

In sectors where the state government has jurisdiction over natural resources used in the provision of infrastructure such as ports and water, a situation of multiple regulatory agencies have emerged. In the ports sector, non-privatized ports are regulated by the Ministry of Transport while each privatized port is regulated by its own regulatory agency, for example, Bintulu Port is regulated by Bintulu Port Authority. There have been discussions to establish a federal agency to regulate all ports including privatized ports in Malaysia.

In the water sector, some degree of centralization in regulatory matters has occurred with the amendment of the Federal Constitution in 2005 and the passage of both the Water Services Industry Act (WSIA) and the National Water Services Commission Act in 2006. With these legislation, issues related to water supplies and services are regulated by a federal agency, namely, the National Water Services Commission (SPAN, or Suruhanjaya Perkhidmatan Air Negara), while state governments continue to regulate water resources. The changes that these legislations brought have not been entirely without controversy – as the ongoing debate on the proposed takeover of the water supply and services in Selangor by the state government indicates. Under WSIA, all water assets are to be transferred from state governments to the Pengurusan Aset Air Bhd. (PAAB) by the end of 2009. However, disputes emerged in the case of the state of Selangor after the state fell into the hands of the opposition coalition (Pakatan Rakyat) following the March 2008 elections. The then newly formed Selangor state government (via its investment arm, Kumpulan Darul Ehsan Bhd.) proposed to consolidate the water sector in the state by purchasing the water assets owned by four concession holders, namely, Puncak Niaga Sdn. Bhd. (PNSB), Syarikat Bekalan Air Selangor (Syabas), Syarikat Pengeluar Air Sungai Selangor Sdn. Bhd. (Splash) and Konsortium ABASS Sdn. Bhd. in February 2009 and June 2009. Throughout these negotiations, the Federal government has been accused as intervening to favour the concessionaires PNSB and Syabas.

In the case of projects privatized via Built-Operate-Transfer (BOT), lease-sale and contract management, regulations are imbedded in the contractual agreements in the form of performance standards and various other clauses. As the terms and conditions of concession agreements are confidential, the exact nature and form of this type of regulation is often not clear. The most important of these relate to schedules for tariff increases which has generated significant debates in the media for a variety of infrastructure sectors such water supply, electricity supply and expressways. In the case of electricity supply and expressways, in particular, the Government has occasionally opted to defer tariff increases with the consequence of having to compensate the concessionaires financially or renegotiate by extending the concession period. These cases suggest that not only were there problems in the privatization process, the regulatory mechanisms in place provided substantial discretionary powers to politicians. The two issues are related – a flawed privatization process may

require discretionary political powers to correct them. However, not all mistakes can be corrected. In the electricity supply sector, for example, the negotiations between TNB and IPPS over the PPAs remain controversial even today. For example, in a press interview, the former executive chairman of Tenaga Nasional Berhad (TNB), Tan Sri Ani Arope, argued that in the power purchase agreement (PPA) signed, TNB had to pay a higher price to IPPs (e.g. 15.5 sen per kilowatt to YTL) compared to its own generating cost at 8-10 sen per kilowatt (kw). (Ani Arope 2006). This seems to cast doubts on the extent of efficiency gains and improvement in consumer welfare achieved in the liberalization of the electricity supply sector. No doubt, further reforms are required to finetune the existing regulatory framework in the infrastructure. These should include, amongst others, revisiting terms and conditions in new concession agreements and the introduction of scheduled tariff revisions.

## **INFRASTRUCTURE'S CONTRIBUTION TO ECONOMIC GROWTH AND DEVELOPMENT**

Infrastructure has, without doubt, played an important role in Malaysia's economic growth and development. The empirical analysis of the impact of infrastructure on economic growth and development has been an intensively researched area particularly since the 1980s (see Kessides 1993 and 2008). Most of the recent literature has focused on uncovering the relationship between infrastructure and growth from a macroeconomic perspective using some form of aggregate production function. To date, there is no consensus on the impact of infrastructure on economic growth in the empirical literature and this partly due to methodological problems (Straub 2008). In the case of Malaysia, most of the discussions on the contribution of infrastructure have mainly taken the form of economic history narratives. Both approaches are used to discuss the contributions of infrastructure to economic development.

During the pre-independence period, investments in transport infrastructure were mainly undertaken in the west coast of Peninsular Malaysia (or Malaya before 1963) to serve the transportation needs of tin and rubber industries. This included the construction of railway lines connecting Port Weld to Taiping (1885) and Port Swettenham (Port Klang) to Kuala Lumpur (1899) for the purpose of shipping tin ore. The development of the rubber industry between the late 19th century and early 1930s was clearly made possible with expansion in the railway and road networks (Lim 1967). Thus, an extensive road and railway network covering major towns in the East Coast and West Coast of Peninsular Malaysia was already in place. The early history of electricity supply is similar to that of road and railway – the initial investments in the 1890s and subsequent expansion up to the 1920s were undertaken to serve the tin mining industry (Lim 1967). Ironically, mineral resources and rubber were also the main reasons for the Japanese occupation of the country from 1941-45 during which the infrastructure stock deteriorated significantly. After the Second World War, road transport infrastructure expanded more rapidly and became, over time, more important to the economy compared to railways. Further upgrading and expansions in Malaysia's road infrastructure and ports (particularly in Peninsular Malaysia) played a crucial part in enabling the subsequently structural

changes in the country's economy in the 1970s and 1980s. All major manufacturing industrial zones in the country that emerged during this period such as Bayan Lepas (Penang), Shah Alam (Selangor), Senai and Pasir Gudang (Johor) were located in areas with good road access to major ports with container facilities (Penang Port, Port Klang and Johor Port) and airports (Cho 1990). Likewise, resource-based industries such as wood processing and palm oil benefited from the relatively good road networks in Peninsular Malaysia.

Another way to assess the contribution of infrastructure on development is to examine the improvements in the quality of life of citizens in the country especially in the rural sector (given that much of the initial infrastructure investments were undertaken either in or to connecting urban areas). As discussed earlier, overall access figures for water and electricity coverage in rural areas give the impression that the rural sector's infrastructure needs have not been neglected (see Table 5). However, water and electricity coverage as well as road transport network in Sabah and Sarawak have persistently lagged behind those in Peninsular Malaysia especially in the rural areas (Table 6).

**Table 6: Water and Electricity Supply Coverage in Malaysia, 2000 & 2005**

	Water Supply Coverage (%)			
	2000		2005	
	Urban	Rural	Urban	Rural
Malaysia	97.0	85.0	98.0	92.0
Sabah	89.0	60.0	90.0	61.0
Sarawak	100.0	92.0	100.0	92.0
	Electricity Supply Coverage (%)			
		Rural		Rural
	Malaysia	89.5		92.9
	Sabah	67.1		72.8
	Sarawak	66.9		80.8

Source: Ninth Malaysia Plan (9MP2006).

In terms of the more quantitative type of evidence on infrastructure and growth in Malaysia, there has been no econometric-type analysis that directly links infrastructure to economic growth. This is not surprising given data limitations, infrastructure capital stock is both 'lumpy', comprises different types of assets (e.g. railways, ports, airports) and experience technological change (e.g. fixed line vs. cellular/mobile telephony) – all making an econometric analysis of the relationship between infrastructure and economic growth difficult. Furthermore, investments in infrastructure services lead to improvements in quality of life which cannot be measured by looking at data on GDP per capita.

Indirect empirical evidence on the relationship between infrastructure and growth comes from the study that was carried by Tham *et al.* The authors found a negative relationship between transportation cost and export volume for electrical and electronic products (Tham *et al.* 2008). Given that investments in transport infrastructure (e.g. container facilities in Penang Port) are likely to result in lower transportation costs and that Malaysia's economic growth is driven (among other factors) by exports of electrical and electronic products (which accounted for around 65% of manufactured exports in 2005) – one can deduce that infrastructure investments (at least in the transport sector) could have had pro-growth effects in the case of Malaysia.

Another set of important research question relates to the impact of the reforms (e.g. privatization) in the infrastructure sectors on economic growth. An econometric analysis would require disentangling the effects of investments from changes in ownership (i.e. privatization). Both effects are often cited as gains from privatization – the first by overcoming the Government's financial constraints, the second by bringing about productivity gains. Unfortunately, It is difficult to separate the two effects. Most studies would only focus only the second effect, for example, Galal's study of the privatization of the Klang Container Terminal (Galal *et al.* 1994). Such problems are even more difficult for greenfield infrastructure projects such as the 847-km North South Expressway. In this case, in the Seventh Malaysia Plan 1996-2000 period, it has been found that the project had reduced travel time by 50% and operating cost by 25% (7MP:344-7). Had the project not been privatized, would such gains be different? This question can be partially answered in cases where private and public operators coexist, for example, in the water sector across different states. In one such study, it was found that privatization in the water supply sector *per se* does not seem to have improved access to treated water by (Lee 2009). However, privatization does not also seem to have adversely affected affordability in the sector. These ambiguous results are due to the continued presence of the Government ( for example, in rural water projects) even after segments of the industry have been privatized.

For Malaysia, the difficulty of assessing the impact of infrastructure privatization on growth and development is compounded by the official statements on the objectives of and gains from privatization. Apart from the above gains (efficiency and overcoming financial constraints), the other objectives include the achievement of the NEP objective of wealth redistribution. This, together with political economy critique on the process of privatization (for example, rent-seeking behaviour) complicates any formal estimation of the impact of privatization on growth and development. Some of these issues are discussed in greater depth in a separate chapter (see Jomo & Tan).

## **CONCLUSIONS**

Malaysia has made significant investments in its infrastructure sectors. The result has been a fairly rapid expansion of infrastructure capital stock for the past fifty years. This has ensured that no major

bottlenecks have occurred that would have severely constrained the country's economic growth. The story is not merely of investment and physical expansion of infrastructure but one of structural transformation in terms of incentives and ownership. The privatization exercise (coupled with market liberalization in some sectors) that began in early 1980s, and which continues until today, even though not entirely successful in some sectors, has transformed the infrastructure landscape in the country. Some of the problems that have emerged in the sector can be traced back to the privatization process and the regulatory reforms that were (and were not) carried out. The experience gained and lessons learned from the past in these areas should be used to undertake further reforms in the sector.

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