

'INFRASTRUCTURE INVESTMENT IN AUSTRALIA
COMPARED WITH THAT OF VIETNAM'
So sánh việc đầu tư xây dựng cơ sở hạ tầng
giữa Australia và Việt Nam

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INTRODUCTION

Vietnam is an emerging nation, that is undergoing rapid change and development. To keep pace with this development the infrastructure in Vietnam requires steady improvement for the country to be internationally competitive. Many existing assets are in need of restoration or maintenance. The development of an integrated infrastructure is required for mining, transport systems, communication networks, energy production and supply, water reticulation systems, and other civil works is required for continued improvement of living standards for the Vietnamese. The competing demands for infrastructure investment currently exceed available resources and funding and thus slows development.

In Australia, rapid growth of infrastructure has occurred over the last 50 years. The society has been well served by its communications, power, transport, water supply, buildings and waste disposal facilities. Along with infrastructure constructed late last century and more recent acquisitions, Australia has an infrastructure portfolio ranging in age from new to over 100 years. The annual cost of 'holding' these assets, including maintenance, repairs, energy, security charges and financing costs, places pressure on the available funding. Whilst capital spending has remained high, the proportion has declined from just under seven per cent of Gross Domestic Product (GDP) in the mid 1980s to just over five per cent today, [1].

This reduction in capital expenditure places Australia in a similar position to Vietnam where there are too many worthwhile infrastructure projects for the funding available. This paper details some of the major areas of need for infrastructure in Vietnam and Australia and outlines techniques that are used in Australia to set priorities for capital and maintenance expenditure.

2.0 INFRASTRUCTURE IN VIETNAM

2.1 Need for Infrastructure Development

Vietnam's economy relies heavily upon its agricultural performance. When weather conditions are favourable, the economic growth rate is high. In the late 1980's, agriculture and industry grew at an annual rate of 5%. Vietnam benefited from Soviet financial assistance in 1990-91. In 1992 Vietnam's industry expanded 4.4%.

In 1987, in order to attract industries for the manufacture of consumer goods, a law on foreign investment was passed. The regulation allowed joint ventures with foreign enterprises, or operations with 100% foreign ownership to be established. This act made

investment regulations in Vietnam the most liberal in South East Asia. Tax concessions offered to the foreign investor were attractive and generous. Any profit is subject to minimal tax rates, and is permitted to leave the country. However, foreign investors have been slow to respond. To date, most interest has been directed towards petroleum exploration, tourism, and food processing. The absence of a modern banking system, and poor infrastructure are often quoted as the primary deterrent to investment.

2.2 *Recent Situation*

The following infrastructure examples confirm the need for development.

Energy

The Vietnamese Government has been progressively increasing its power generation facilities and its power distribution network to alleviate some recent difficulties.

In 1991, electricity production was a low 137 kWh per head, or approximately half of Indonesia, and one-sixth of Thailand's consumption, [2].

The Southern sector had an erratic source of power supply, e.g. during the dry season of 1992, blackouts in Ho Chi Minh City lasted up to three days per week. The North produces a large proportion of Vietnam's power, refer Table 1. To improve its distribution the Government has recently constructed a 500 kV, 1500 km power line, connecting the Northern and Southern supplies.

TABLE 1.
Power production in North, South & Central Vietnam, [2].

	Northern Sector	Southern Sector	Central	Total
Power (MW)	1,934	1,101	224	3,258

Major power generation projects completed in the last 10 years include:

- Pha Lai (North), thermal plant, 440MW.
- Hoa Binh (North), hydroelectric project, 960MW.
- Tri An (South), hydroelectric project, 440MW.

Transport

The road, rail and shipping transport networks in Vietnam are gradually being upgraded to allow faster movement of freight traffic. Funding is proving difficult to obtain for the restoration and renovation of this transport system. Tables 2 & 3 give a brief insight into the extent of transport infrastructure of Vietnam.

TABLE 2.
Approximate Transport Infrastructure Register of Vietnam, [3].

	Southern Sector Estimated Total	Northern Sector Estimated Total
Railway Bridge		
- Less than 100m in length	10	5
- More than 100m in length	31	16
Road Transport Bridge		
- Less than 100m in length	60	76
- More than 100m in length	63	43
Subways		
- Road	8	17
- Rail	2	2
Ferries	12	49
Airports		
- International	1	2
- Domestic	12	4
Seaports		
- Other	2	3
- International	7	5
Large River Ports	7	8

TABLE 3.
Transport Infrastructure of Vietnam's Capital Cities, [3].

	Ho Chi Minh City	Hai Phong	Hanoi	Danang
Bridges	15	5	16	8
Ferries	1	1	2	0
Tunnels	0	0	0	2
Bus Terminals	2	1	4	0
Airports				
- International	1	2	2	0
- Domestic	0	1	1	1
River Port	1	1	1	1
Sea Port				
- International	1	2	0	1
- Domestic	0	0	0	2

Roads

Reconstruction of the road network has been of high priority since 1975. The road system in Hanoi receiving particular attention. For example, the first six lane expressway in Northern Vietnam opened on 10th March, 1993. This 15km long, 23m wide road connects Hanoi with Noi Bai International Airport. It has a capacity of 8000 vehicles per day at speeds of up to 120km/hr, [4].

In total, Vietnam has approximately 105,500km of roads, of which an estimated 12,000km is paved, with 20,000km having gravel surfaces. There is one national single lane highway that links North to South. It is known as the "1A". In rural areas the road hierarchy is national, provincial, district and access roads. National and provincial roads are either concrete or asphalt surfaces, whilst the remainder consist mainly of gravel.

Railway

During French occupation the main rail links between Hanoi and Ho Chi Minh City, and between Haiphong and Yunnan, were built. After sovereignty was handed over in 1954 by the French, the Chinese helped build a third major route from Hanoi to Guangxi. Restoration work commenced on this line in late 1991.

The rail system was badly damaged during the civil war between the North and South of Vietnam. Since 1975, it has been a priority to reconstruct the service.

In total there are six single track routes totalling 3,220km.

Hanoi	-	Ho Chi Minh City	1730km
Hanoi	-	Hai Phong	102km
Hanoi	-	Muc Quan	176km
Hanoi	-	Thanh Hoa	160km
Hanoi	-	Loa Cai	295km
Dong Anh	-	Thai Nguyen	45km

Presently, there is a program to upgrade the Hanoi-Ho Chi Minh City and Hanoi-Loa Cai lines, and to purchase new diesel locomotives and carriages. Of the total 480 locomotives, a fifth are over 30 years old, and only 50% operate at any one time.

Seaports & Waterways

Vietnam has seven international seaports, and five ports for coal and oil shipments. Only an estimated fifth of international trade is carried on Vietnamese ships, which at present totals 172 vessels. There are three main ports, Haiphong in the North, Ho Chi Minh City in the South, and the ex-US base in Danaug. Updating of the port system is required.

Telecommunications

By international standards, Vietnam has a very low density telephone system. At present there is only one telephone for every 500 people. In 1987 Overseas Telecommunications International (OTCI) set up two large satellite stations in Hanoi and Ho Chi Minh City. Between 1987 and 1991, international calls increased by 1700%. Recent contracts have installed radio links from Hanoi to Ho Chi Minh City.

To keep pace with Vietnam's emerging economy there is clearly a great need for infrastructure development. The priorities for the many infrastructure projects need to be set and funding for projects found. Vietnam, like many other countries, is actively seeking private investment to compliment its direct investment in infrastructure.

3.0 INFRASTRUCTURE IN AUSTRALIA

3.1 Background

Australia, like Vietnam, has large agricultural and mining sectors that contribute significantly to its overall economy. Our countries also have expansive distances. Australia in overall area, Vietnam in its long narrow shape.

Australia's infrastructure expenditure accounts for about 5% of GDP. Infrastructure also accounts for about 80 per cent of all engineering construction work in Australia. It includes transport and communication links, water, sewerage and electricity, most of which service urban areas and the various connecting links to and between urban centres. The balance (about 20 per cent) is construction for mining and industry including mineral processing and oil and gas work.

3.2 Current Investment

Recently published information by the Construction Forecasting Committee of the Department of Industry Sciences and Technology [6], has shown that in 1992 - 1993 nearly 75% (or \$8.5 billion) of engineering construction was undertaken for the public sector. Public enterprises undertook \$5.7 billion of this work. State Government authorities are primarily responsible for the provision of electricity, urban services, roads (except national highways and local roads) and major parts of the transport network. The balance is split between Commonwealth expenditure on telecommunications, transport and defence works and local government, the largest part being for roads.

In 1992 - 1993 approximately \$2.8 billion dollars worth of work was let to private contractors, refer Figure 1. There is currently a trend for more of this work to be contracted out.

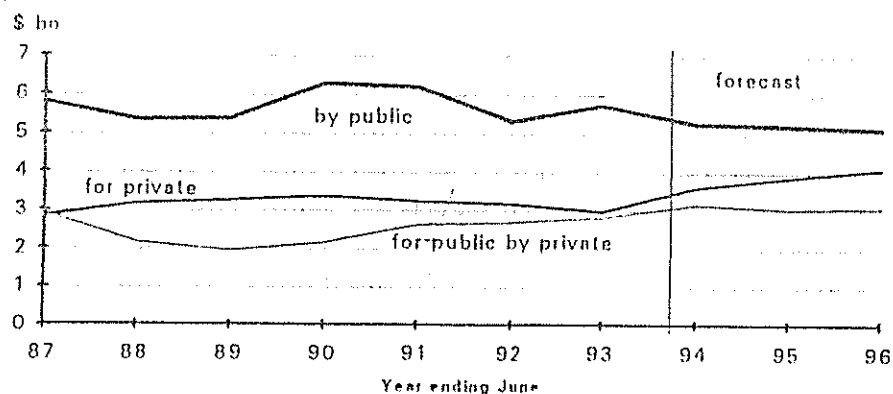


FIGURE 1 - Engineering Construction by Owner
(\$ 1993 - 1994 Constant Prices) [5]

In 1992 - 1993 approximately \$3 billion was spent on infrastructure by private sector clients. The major categories being mining, oil and industrial and road and subdivision works. There is a significant push to attract private investors to build own and operate infrastructure assets. Infrastructure bonds are now also seen as an additional funding source. Recent changes to the eligibility criteria for investors to include superannuation funds has been welcomed.

3.3 Demand

The demand for engineering construction has two components, [5]:

(a) *Population growth*

Australia currently has declining population growth, mainly due to the impact of a reduction of net migration.

(b) *Replacement and upgrading of infrastructure*

Deterioration and obsolescence of existing infrastructure and the demand for new technology has placed increasing pressure on Australia for increasing work to upgrade harbours, rail, water treatment plants and airports. e.g. Refer Figure 2. - Transport Infrastructure. This demand far exceeds the reduced demand associated with the changes in population.

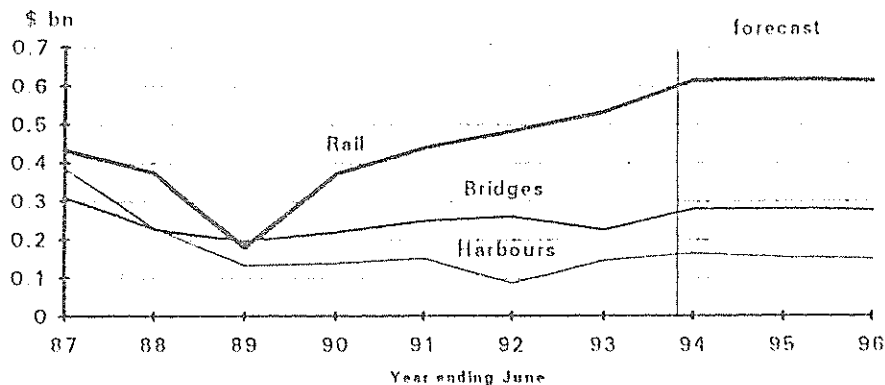


FIGURE 2 - Transport Infrastructure
(\$ 1993 - 1994 Constant Prices)

To meet the demand for infrastructure development, without exceeding government borrowing limits, Australian governments are seeking to involve private investors in infrastructure development.

4. TECHNIQUES FOR PRIORITISING INFRASTRUCTURE INVESTMENT

Australian Governments all have similar objectives when it comes to infrastructure investment. These objectives are well summarised by the state of New South Wales (NSW) [6] as:

- to optimise return on the Governments capital investment program; and
- to improve the States economic and social position

The approach adopted by NSW is presented in Table 4.

TABLE 4
New South Wales approach to investment in infrastructure

Total asset management	<ul style="list-style-type: none"> • focus agencies on core function & responsibility, namely: strategic planning and service delivery, • shift focus from capital works to broader issue of asset planning
Capital project procurement	<ul style="list-style-type: none"> • reduce risk in contracting by adopting a consistent, professional approach • reduce level of duplication and overlap of functions

Total asset management is defined as:

"the sum of activities leading to infrastructure appropriate to the cost effective delivery of Government services. This includes:

- *identification of the need for the asset*
- *provision of the asset including its refurbishment*
- *operation and maintenance of the asset, and*
- *disposal of the asset".*

Before any new capital investment in infrastructure is approved a process considering demand and strategic planning over the total expected life of the asset is considered, refer Figure 3.

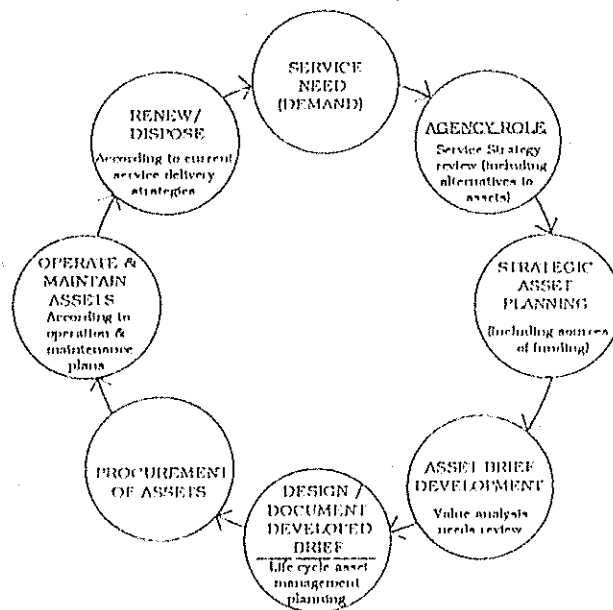


FIGURE 3 - Holistic Asset Management Approach

The consideration of these factors may include detailed:

- Economic appraisals, including calculation of:
 - * Benefit cost ratio;
 - * Net present value;
 - * Net present value per dollar of capital investment;
 - * Internal rate of return; and
 - * Cash flow forecasts.
- Value management

- Private sector participation
- Post completion reviews
- Valuation guidelines
- Life cycle costing
- Demand management
- Heritage perspectives
- Asset management
- Energy management
- Identified qualitative factors are considered separately. The factors may include:

- * Environmental considerations;
- * Industrial relations;
- * Social or regional impact;
- * Safety;
- * Public relations;
- * Resource availability;
- * Funding considerations; and
- * Distribution of benefits and costs.

5. CONCLUDING REMARKS

There are many similarities between Vietnam and Australia:

- Both countries require infrastructure capable of operating efficiently over great physical distances.
- Our countries both have strong agricultural and mining sectors. This influences the shape of our transport infrastructure.
- Infrastructure development is required in both countries.
- Private and overseas investment is sought to compliment government funding to meet our infrastructure demands.

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