

Brunei's Quest for Sustainable Development: Diversification and Other Strategies*

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Abstract

Like many Middle East economies, Brunei is an oil-rich rentier economy with a high degree of dependence on guest workers, concentration of employment of Bruneians in the public sector and with a high degree of specialisation in extractive production. Because its hydrocarbon reserves are diminishing, it faces the problem of how to sustain its income. The potential for it to do this by investing its rental income abroad and by diversifying its economy are discussed, and comparisons are made with oil-rich Middle East countries and MIRAB economies. Doubts are raised about industrial diversification as a suitable sustainable development strategy for Brunei. Expansion of service industries may offer better prospects. Brunei's entry into APEC could limit its scope for adopting strategic policies to restructure its economy.

Keywords: Brunei, development strategies, economic diversification, Malay Muslim Monarchy, oil-rich economies, rentier economies.

1. INTRODUCTION

Brunei is fortunate in having large oil and natural gas deposits relative to its population, and yet this is also to some extent a misfortune. The rents (the so called unearned income) from these resources have become an impediment to the diversification of Brunei's economy and impede the long-term sustainability of its economic activity and income levels. Its situation is similar to that of many other rentier-type economies as described by Kakazu (1994). Such economies receive high levels of income from rents such as from minerals or other natural resources. A number of

economies of this type exist in the Pacific apart from Brunei, e.g., Nauru, and in the past, Kirabati and in the Middle East. Kakazu (1994) argues that the Northern Marianas receives considerable rental income from tourism because of its proximity to Japan and that it also has the characteristics of a rentier economy with the possibility that its tourism resources may be destroyed by over utilization.

Brunei as a rentier economy is, like the Northern Marianas, heavily dependent on guest workers for the operation of its economy. In that respect, it differs markedly from another set of small rentier economies described by Bertram and Watters (1985, 1986) as MIRAB economies. These small Pacific (mostly island) economies obtain their rent or 'unearned' income from foreign aid and from remittances sent by their nationals who have migrated abroad. (See also Bertram 1986; Tisdell, 1990, Ch. 10; Poirine, 1994).

The acronym for these economies is derived as follows:

- MI - migration
- R - remittances
- A - aid
- B - bureaucracy

'Bureaucracy' indicates a large government sector dominating these economies. Such economies include Tuvalu, Kirabati, Marshall Islands, Cook Islands and French Polynesia plus others.

Most foreign aid is channelled through the public sector in MIRAB economies. Outside this sector, indigenous private commercial activity is little developed and a subsistence sector exists which is dependent partially on remittances from abroad and from those family members employed in the public sector.

As in Brunei, incomes in MIRAB economies are higher and working conditions are better in the public sector than in the private sector. To a large extent, employment in the public sector acts as a mechanism to distribute foreign aid or rental income. While such a system may seem just, it hampers the growth of private commercial industry by reducing the supply of local labour and talent to private industry. Furthermore, private industry may be crowded out by investment in the public sector. Remittances may also undermine the motivation of local recipients of these to put in their 'best' economic effort and so reduces the efficiency of their subsistence sector. All these factors, as well as the small size of MIRAB economies, makes it difficult for MIRAB economies to diversify their production and particularly to promote the growth of an indigenous private commercial sector. Hence, they experience some of the problems which Brunei encounters.

Nevertheless, Brunei is quite different to MIRAB economies in several respects. Its rent or surplus is derived from its own natural resources, not foreign aid. Because of this aspect, it has much more autonomy in its economic decision-making than MIRAB economies. Furthermore, Brunei is a source of remittances and a haven for temporary migrants as guest workers whereas the opposite situation occurs for MIRAB economies. However, like MIRAB economies, Brunei receives a rental income, a significant amount of which is distributed through employment in the public sector. This together with the dominating economic impact of the oil and gas sector, appears to be a factor crowding out independent private industry controlled and developed by Bruneians.

Table 1 throws further light on the nature and structure of employment in Brunei. First, more than half of Brunei's workforce is comprised of guest workers. Its economic production is critically dependent on foreign workers as is also the case for oil-rich

Persian Gulf countries (Livingstone, 1993). Secondly, indigenous Bruneians tend to crowd in their employment into selected sectors and avoid others in a similar fashion to that of Persian Gulf States (Livingstone, 1993). The intensity figures for employment of Brunei citizens in industry in Table 1 show comparative avoidance by native Bruneians of employment in construction, manufacturing, the wholesale and retail trade, restaurants and hotels as is the case in oil-rich Middle East countries. Sometimes jobs in these sectors are dirty, unpleasant or involve long hours of work for low pay. Employment in these sectors is dominated by guest workers. Hence, relative employment of Bruneians in other sectors is much higher. All these sectors, except agriculture, are subject to direct government involvement either through ownership of public enterprises (e.g., electricity, gas and water), direct activities of government departments (e.g., community, social and personal services), partial ownership of enterprises as in the case of oil and gas (e.g., Royal Brunei Shell) and such that political pressure can be placed on enterprises to give preference in employment to citizens of Brunei as opposed to foreigners. Employment decisions therefore are not made entirely on economic efficiency or profitability grounds, but are in part a mechanism for distributing Brunei's rents. This creates institutional and structural rigidities for Brunei which, as discussed later, act as impediments to the diversification of its economy and pose dilemmas for it similar to those experienced by several Persian Gulf States, (Livingstone, 1993).

INSERT TABLE 1

Although Brunei is a labour-deficient economy heavily dependent on guest workers (who tend to fall into two categories – those doing manual and/or unpleasant work and those who have specialist skills – unemployment amongst Bruneians has

risen. It rose from 3.7% in 1981 to 4.7% in 1991 and is especially marked amongst the 24-year old and under group for which unemployment levels more than doubled in the period from 1981 to 1991. For persons in the age group 15-19 years, it rose from 18.1% in 1981 to 37.4% in 1991 and for those 20-24 years, it increased from 6.4% to 11.8% (Economic Planning Unit, 1993, Table 8.5). In addition, there is considerable voluntary unemployment, particularly amongst the children of the rich (Ali, 1992). High unemployment amongst youth is exacerbated by the fact that they are reluctant to take up 'blue collar' jobs in the private sector or jobs of low social status preferring to wait for the possibility of public sector employment which has higher social status and is considered more secure, a situation similar to that in Saudi Arabia (Livingstone, 1993, p. 87). Such waiting is possible because of extended family support.

Brunei, like other mineral-rich exporting countries, has to make decisions about how much of its rental income to invest abroad and how much to allocate to its domestic economy and in what way. This allocation has important consequences for employment and incomes in Brunei. The importance of this issue is highlighted by Cleary and Wong (1994), p. 100) who stated, 'Much of Brunei's excess revenue is banked rather than invested in development, and held overseas rather than domestically. There is little doubt that if part of such funds were invested [in Brunei] in industries that could generate linkages, bring in technology transfer and develop export potentials, the benefits and multipliers to the country would be considerable'. Let us consider this matter first before discussing some of the strategies which Brunei may consider for diversifying its economy. The latter *also* has implications for employment and incomes in Brunei, particularly their sustainability.

2. ALLOCATION OF RENTAL INCOME – INVESTMENT ABROAD VERSUS USE AT HOME

Brunei is concerned to provide for its non-oil or non-hydrocarbon future. In order to sustain income in the future, Hartwick (1977) recommends that rent from the depletion of non-renewable natural resources, such as hydrocarbons, be invested in man-made capital. This has become known as the Hartwick rule for sustainability. Considerable doubts have been expressed about the validity of Hartwick's rule as a means of sustaining consumption (Ströbele, 1984; Müller and Ströbele, 1985; Tisdell, 1997). Furthermore, Hartwick's rule pays no attention to the specific type of issues faced by Brunei and its need to allocate funds to provide current income and employment support for Bruneians. In reality, it is politically and socially unacceptable in Brunei's case to ignore the latter aspect, and it has not been overlooked by the Government of Brunei. If the latter aspect were ignored, then little of Brunei's rental income might be allocated for use in Brunei. Most of it is likely to be invested abroad. This is likely to be so if Brunei's sole aim were to maintain the *financial* return on the use or investment of rental received by it. Let us *assume* that Brunei's aim is to maximise the financial return from its rental income by allocating it between investment opportunities in Brunei and those in the rest of the world. The 'worst' scenario would be one in which returns on investment abroad are always higher than for all investment in Brunei. In that case, all of Brunei's rental income would be invested abroad and none of these funds would be invested in Brunei. This case can be illustrated by Figure 1. Let the line AC represent the internal rate of return from investment of rental income abroad and DF indicate that for investment in Brunei. If Brunei's total rental income is X'_R its financial return is maximised by investing it all abroad. If on the other hand, line GH

represents the internal rate of return on investment in Brunei, X_B^* of funds would be allocated to Brunei and X_R^* should be invested abroad to maximise returns on funds. If a purely financial criterion is adopted, the proportionate investment of rental income in Brunei would then be small. In that case, the criticism of Cleary and Wong (1994, p. 100) that Brunei should invest considerably more of its rental income at home, may not be justified, except possibly in a more dynamic context such as that discussed in the next section of this article.

Insert Figure 1

The above strategy of maximising financial returns from rental income does not make any of the rental income available for consumption. There is no rule for drawing on rental income for consumption purposes. If the real rate of return on these funds happened to be 10 per cent per year, then the interest (in the absence of inflation) could be used for consumption purposes and the capital value of the fund sustained. If a smaller amount is withdrawn for consumption purposes, financial assets will increase. A decision has to be made about whether to increase, decrease or hold constant financial assets held by Brunei as a result of investing its rental income. This decision will have implications for the sustainability of future consumption by Bruneians.

A decision also has to be made by the Government about how to distribute any rental income or interest on such income to Bruneian citizens. To do so by means of a monetary *grant* to families and individuals may discourage local development and industriousness.

Another alternative would be for Bruneians to all be given shares in all enterprises involved in the recovery of oil and gas and in all financial investments made using previous rental income. What to do with the returns or dividends received and

with these shares would then become a matter purely of private decision-making by individual Bruneians. However, many Bruneian families may lack the skill or even the will to manage their investment portfolios wisely and this may adversely affect their heirs and successors. Inequality of income may increase. This option therefore may not be considered to be suitable by the Government of Brunei.

Consideration may be given to using some of the rental income in Brunei to stimulate employment of Bruneians and provide them with a socially acceptable wage or level of income. Investment in infrastructure and other publicly available goods provides some redistribution of rental income in Brunei since these facilities can be used directly by all Bruneians. It, however, appears that a few Bruneians are employed in construction of such infrastructure; most of those employed are guest workers. At the present time, few Bruneians appear to be employed in physical work or in commercial work. Largely this is because wage rates and employment conditions for Bruneians are much more favourable in the public sector. The situation is similar to that observed by Livingstone (1993) in the oil-rich Gulf States.

This situation might be rectified by making a subsidy available for employment of Bruneians in the private sector, and possibly at the same time reducing benefits for some categories of employment in the public sector. A private employment subsidy will result in greater production than a straight out income transfer or extra employment in the public sector if extra employment in this sector results in very little extra productivity.

This can be illustrated by Figure 2. Suppose that Brunei wishes to maintain a minimum social wage for Bruneians equivalent to OB . Given that the value of marginal productivity of Bruneian labour in Brunei's private sector is as indicated by line EF , \hat{L} of labour would be employed in the private sector supposing that \bar{L} of Bruneian labour

cannot find employment in the public sector. Hence $\bar{L} - \hat{L}$ of Bruneian labour would be unemployed in this case in Brunei. The *minimum* subsidy to ensure the employment of this surplus Bruneian labour in the private sector is indicated by the area of hatched triangle CFD. This requires a subsidy on a sliding scale which may be difficult to administer. For greater simplicity, a subsidy of AB for employment of surplus Bruneian labour in the private sector might be considered. This would cost the Government an amount equivalent to the area of rectangle GFDC. This is less than if a straight income transfer is made to labour because in that case, the cost to the government would be equal to the area of rectangle HJDC.

Insert Figure 2

Furthermore, in this case the economy forgoes a significant contribution to output equivalent to the area of quadrilateral HJFC. Similarly, if the surplus Bruneian labour force is employed in the public sector, the cost will be the same to the Government as in the straight income transfer case and the loss of production in the economy will be the same also if marginal productivity of employment in the public sector is zero, or nearly the same if it is near zero.

While instituting an employment subsidy for Bruneians in the private sector (and reducing support for their employment in the public sector) involves some practical difficulties, it seems desirable on productivity grounds. A mechanical type of subsidy need not be employed. Improving conditions for those employed in the private sector e.g. subsidised retirement benefits, could help to rectify present employment imbalances between the public and private sectors. As mentioned previously, many of the oil-rich Gulf States have the same type of problem. Livingstone (1993, p. 96) recommends that 'consideration should be given to an appropriate system of incentives

which would encourage small- and medium-scale enterprises above a certain very small size to recruit young nationals as technical apprentices and management trainees as appropriate'. A range of options are available. Nevertheless, the general message is that greater use of Brunei's rental income to stimulate increased employment of Bruneians in the private sector may provide a better basis for the long-term sustainable development of Brunei and diversification of its economy than present practices.

3. DIVERSIFICATION OF BRUNEI'S ECONOMY

3.1 Background

While Brunei is well placed to enter the 21st Century, and should have sufficient income from sales of oil and natural gas and from its investments abroad to sustain its income until around 2040, Brunei's leaders are worried about the sustainability of Brunei's income beyond this time. It is appropriate that they should be concerned since the likely depletion of Brunei's commercial reserves of hydrocarbon by this time will affect Bruneians currently under about 25 years of age during their expected lifetime and those who will be born in the not too distant future. The issue therefore, is thus starting to become more pressing. It is an issue which already has been the focus of Brunei's policies.

In anticipation of its non-oil future, Brunei has stressed the importance of diversifying its economy. In fact diversification was an aim beginning with its First National Development Plan (1954-1958) but Cleary and Wong (1994, p. 96) claim that Brunei has failed to elaborate clear strategies for diversification and that its 'achievements have been muted to say the least'.

Brunei's economic policy has, since the beginning of its Fifth National Development Plan, been directed towards three objectives:

- (1) diversification via industrialization,
- (2) industrialization via privatization, and
- (3) privatization via Bruneization (Ali, 1992, p. 196).

Ali (1992, p. 197) claims that progress in achieving these goals has been slower than expected and certainly it is less than desired. (This is reflected in the fact that 38.9% of employment in Brunei in 1971 was in the public sector, in 1981 46.6% and in 1991 45.9%. The size of the public sector has failed to decline in terms of relative employment to any significant extent.) The attainment of these objectives is seen as an end to achieving income sustainability once Brunei's commercial hydrocarbon reserves are depleted.

In Brunei's case, the process of achieving these goals is not an easy one.

Factors which limit the process include:

- (1) Brunei's comparatively small home market.
- (2) Strong economic competition from neighbouring countries e.g. Singapore and Malaysia.
- (3) Limited natural resources, apart from hydrocarbons.
- (4) The need to foster a strong independent work ethic and high managerial motivation amongst Bruneians. Social and Islamic religious values seem to be more important than commercial values, and where there is conflict, the former tend to prevail. How to preserve social and Islamic values and adjust to commercial realities in a modern competitive world is of importance. It should be noted, however, that Islam is not inconsistent with commercial activity and trade. Indeed, it has been suggested that originally conversion to Islam in Southeast Asia was in part because Islam was associated with traders, e.g., the Arabs, and

because it was adopted by better-off commercial groups in Southeast Asia (Devahuti, 1965).

Nevertheless, some writers believe that diversification, economic liberalisation and increased globalization pose a possible threat to the Malay Muslim Monarchy which constitutes the Government of Brunei. Blomqvist (1997) for example propounds the view that the matter is more a political problem than an economic one. He states that, 'Although the state of Brunei is basically benevolent, the problem is, on the one hand, that diversification may unleash forces that may make it difficult to preserve the *status quo* as it is outlined in official state ideology, Malay Muslim Monarchy. Hence, the Government has to tread carefully balancing the risk of alienating the indigenous Malays, who are crucial for upholding the Monarch, from cultural and religious values, which could easily be the consequence of successful economic diversification, and creating resentment among the foreigners and permanent residents, whom the economy cannot do without' (Blomqvist, 1997, pp. 16-17).

In relation to Brunei's development goals, it is unclear why such a high level of importance has been placed on industrialization. Such emphasis could result in the neglect of Brunei's potential for developing its service (tertiary) industries such as tourism, and also particular types of agriculture as discussed later. Oil-rich Gulf countries have a similar emphasis on industrialisation and diversification (Livingstone, 1993). It is suggested later that tertiary industries provide much better prospects on the whole for diversification of Brunei's economy than manufacturing.

An important issue in relation to economic diversification and restructuring of economies is the extent to which these should be left to free market forces. The associated issue is the extent to which government support is justified for economic

diversification or structural change. Let us consider this matter in relation to various theories of trade drawing out implications for Brunei.

3.2 Industrial Development Theories of Trade And Selection of Industries

Free Trade And Comparative Advantage

Classical economists have argued that nations should specialise in production according to their comparative advantage and that this specialization will be promoted by free trade. Heckscher and Ohlin showed that countries are likely to have a comparative advantage in producing goods and services which make greatest use of their relatively abundant factors of production. In the case of Brunei for example, it has relatively abundant hydrocarbon deposits and so one might expect it to specialize in the extraction of these.

These theories are static. They do not consider changes in comparative advantage and the mechanisms involved in these. Clearly Brunei will no longer have a comparative advantage in hydrocarbon extraction once most of its reserves are depleted.

Will Brunei's economy automatically restructure in a socially acceptable way to take advantage of its new set of comparative advantages? In what new industries will Brunei have a comparative advantage? Should the government of Brunei assist its economy to restructure in line with its predicted new comparative advantages, how should it do this and when should it start to do this? These are all important questions.

In the case of the oil-rich Persian Gulf States, Livingstone (1993, p. 119) recommends that they exploit their comparative advantage in cheap capital and extremely cheap energy. In particular, he stresses the importance of these states *avoiding* labour-intensive industries given their shortage of labour and therefore their

need to rely on imported labour to service such industries. In his view, such industries must be at a comparative disadvantage compared to the location of such industries in low-wage labour surplus countries. Labour imported from these countries must be paid premium wages in importing countries compared to wages available in their home country and/or provided with other benefits. This is necessary to induce the workers to undertake temporary migration.

However, labour is merely one component in the competitiveness of an industry. Good infrastructure, a favourable location, stable government and so on could result in a labour-importing country being able to out compete in terms of the same exports the country from which it draws its labour.

It might also be noted in the case of Brunei that much of its imported labour is used in the production of commodities (goods and services) which cannot be traded internationally or can only be so traded at a very high cost. By importing labour for such purposes, Brunei does in fact obtain these commodities at a lower price than otherwise.

However, one can agree with Livingstone that it makes very little sense for a country like Brunei to develop a footloose industry for export purposes relying on imported labour or to employ such labour to engage in import substitution *in cases* where import is easy and involves a low transfer cost. Nevertheless, Brunei has a small garment-exporting industry reliant on imported labour. This, however, is a special case. It survives because Brunei is afforded small country status by the US and can export garments to the US under a quota arrangement.

Livingstone's recommendations are, of course, based on the *status quo*. While Brunei currently would have a comparative advantage in energy-using industries, this will not longer be the case when its hydrocarbons are depleted. Therefore, it may be a

mistake from a forward planning point of view for Brunei to put too many resources into the development of high energy-using industries. To do so would not be *anticipatory*

Those who strongly believe in the efficiency of the price mechanism will argue that no government intervention is required and that any such intervention is likely to do more harm than good. On the other hand, there are those who argue that the government can play a valuable role as a coordinating body in assisting economic change. For example, the Ministry of International Trade and Industry (MITI) has played a useful role in coordinating structural change in Japan in accordance with changes in the international competitiveness of Japan's industries. Kakazu (1994) in discussing the Commonwealth of the Northern Mariana Islands (CNMI) argues that they have become overspecialized in tourism and that CNMI needs to diversify its economy. He says, 'In order to diversify the CNMI economy good indicative planning with strong policy supports is essential. Policy measures must be designed to strengthen the competitive edge of local industries' (Kakazu, 1994, p. 87).

The main problem of free restructuring of an economy is that it may be adaptive rather than anticipatory. In this case, insufficient restructuring of Brunei's economy may not occur until *after* its hydrocarbon reserves are depleted. There may therefore, be a period in which the economy performs poorly before adequate learning and restructuring occurs. However, a tapering off of hydrocarbon extraction for physical reasons or as a part of government policy *might* assist with smoother transition. (However, see later discussion in Section 5.) A gradualistic rather than a 'big-bang' approach to structural adjustment in Brunei seems desirable. The conservation oil policy introduced in 1981 could have been interpreted as part of such a process. The aim was to reduce Brunei's production to 150,000 barrels per day by 1988. In 1992, production was 152,000

barrels per day but since then has been allowed to increase so that in 1995 it stood at 179,000 barrels per day. Gas and LNG production have also risen in the period 1990-95.

Import Substitution Strategies

If the government of Brunei is to select industries to sponsor prior to exhaustion of its hydrocarbon reserves, how should it go about it? A suggestion has been made by Ali (1992) that it might consider the composition of its imports. Ali argues that some imported goods could be economically produced in Brunei with prospects of limited exports in some cases. In his view, there are some products for which scale economies would not be an important limitation. Apart from manufactured goods, this may also be true for some agricultural tropical crops such as fresh fruit and vegetables production of which has expanded recently (Cleary and Wong, 1994). It should be noted that import substitution strategies are not popular at present in policy circles, e.g., World Bank, IMF.

Imports account for approximately 30 per cent of Brunei's GDP so on the surface considerable scope for import substitution might be thought to exist. But over half of Brunei's imports consist of equipment and capital goods not easily produced economically in a small economy. Nevertheless, in 1991, Brunei imported almost two trillion Brunei dollars of commodities (Brunei's dollar of is on par with the Singapore dollar and these dollars are freely convertible). Table 2 gives a breakdown of Brunei's imports by categories in 1971 and 1991.

INSERT TABLE 2

From Table 2 it can be seen that since 1971 the relative importance in terms of imports of food and live animals, beverages and tobacco have increased considerably whereas *overall* the relative importance of manufactured goods, machinery and

transport equipment have declined. Some agricultural products could possibly be produced economically in Brunei rather than being imported, e.g., horticulture crops of various kinds, and in fact, horticulture in Brunei has expanded recently (Cleary and Wong, 1994). On the other hand, rice production in Brunei appears to be quite uneconomic. Even though rice production is subsidised, production has declined dramatically. By contrast, poultry production has expanded considerably in Brunei. On the other hand, beef production has not been very economic in Brunei and Brunei imports beef from Australia where it has considerable investments in cattle properties. Modern intensive- poultry production is relatively capital-intensive and based to a large extent on sophisticated techniques and methods and would seem to satisfy Livingstone's (1993) criteria for selecting industries likely to achieve economic success in an oil-dependant economy such as Brunei. On the other hand, feed-lot cattle production in Brunei (a joint venture with Mitsubishi) appears not to have been very economic. There may however, be special reasons why one form of capital-intensive livestock production succeeds in Brunei and results in significant import substitution and another fails. This matter requires further investigation given Livingstone's criteria for industry selection.

Expansion of Existing Brunei Industries, Including Service Industries

The existing economy of Brunei is dominated by its oil and natural gas sector in terms of contribution to its GDP and this sector is heavily reliant on Royal Brunei Shell and to a lesser extent Mitsubishi. In 1990, this sector contributed 62.9% of Brunei's GDP (Economic Planning Unit, 1992). Since 1979, when this sector accounted for 88.5% of GDP (Economic Planning Unit, 1986), the relative importance of this sector has declined as a percentage of Brunei's GDP. Nevertheless, it still remains vital to

Brunei's economy. In this period, this sector has diversified by adding LNG to its range of exported products but no significant downstream processing of hydrocarbons has occurred e.g., plastic and fertilizer production, unlike in a number of the oil-rich Middle East countries (Livingstone, 1993). Such industries being dependent on available hydrocarbons would not be sustainable from indigenous supplies in the long-term. This does not mean that they should not be developed, but in assessing the desirability of this, their likely life should be factored into the decision.

Despite its importance as a contributor to Brunei's GDP and its exports the oil sector is much less significant as a (primary) employer. This is not unusual because the labour-intensity of most mining industries is low. In fact, in 1991, the whole mining and quarrying sector in Brunei (in which employment by the oil industry is dominant) employed less than 5 per cent (4.7%) of Brunei's workforce (see Table 3). While higher than in many countries, this sector is clearly not a major direct employer.

In fact, Table 3 indicates that over 70 per cent of Brunei's employees work in the service sector – mainly in community, social and personal services, such as clerical positions in government departments, salespersons in shops, in market and commercial institutions such as banks, wholesalers and retailers. Even within the private sector, Agriculture Forestry and Fishing is of minor importance as an employer and Mining and Quarrying, and Manufacturing sectors are outranked by a number of tertiary industries, e.g., Wholesale, Retail Trade, Restaurants and Hotels.

INSERT TABLE 3

We cannot discount the possibility that the composition of industries in Brunei already reflects their relative profitability and that selection is occurring by evolutionary processes. Nevertheless, there is scope for expanding a number of existing industries

in Brunei to earn more foreign income and provide employment. The tourism sector can be expanded especially if tourism circles or routes involving Southeast Asia (particularly Borneo) are promoted. But this may require Brunei to give more attention to catering for foreign tourists, e.g., more flexibility in banking hours, reduction in visa requirements, for instance, Australians must apply in advance for a visa to Brunei but do not need to do so for many other Southeast Asian countries. Brunei should give more attention to the type of tourist that it wishes to attract. Business obtained by Royal Brunei Airlines could be increased and Bandar Seri Begawan could become a major international airport if it is given adequate investment and promotion. Despite the fact that Brunei faces a lot of competition from Singapore, Thailand and now Malaysia, Brunei's economic opportunity could come in the future. Detailed investigation is required into existing industries (not dependant on hydrocarbon extraction) which could be expanded in Brunei.

In fact Brunei is actively promoting a new growth 'triangle' (Department of Foreign Affairs and Trade, 1995; *Borneo Bulletin*, 24 February, 1997, p.10) namely the East Asean Growth area consisting of Brunei, areas of Indonesia, e.g., Kalimantan, Malaysia's Sarawak and Sabah and Labuan and parts of the Southern Philippines. Brunei aims to become a service hub for this region, distributing commodities and services and developing tourism from the hub. The *Borneo Bulletin*, 24 February, 1997, p.12 reports that it is hoped to establish Brunei as a Service Hub for Trade and Tourism (Shutt) in the region by 2003. This seems to indicate that Brunei is now putting less emphasis on industrialisation as a diversification and sustainability strategy and more stress on the development of service industries. This seems to be wise, but of course, service industries, especially tourism are internationally quite competitive.

Nevertheless, Brunei certainly has the potential to become a tourist hub for east Asean and to develop a leading position in some other service industries. The potential of these service industries to employ Bruneians needs further investigation, e.g., to what extent will Bruneians be employed in the hotel sector?

It is interesting to consider the distribution of employment of Bruneians by major industry groups (see Table 1), presented earlier. In 1991, citizens of Brunei constituted 51.09% of Brunei's workforce. They accounted however for only 14.67% of employment in Construction, 18.67% of employment in Manufacturing and 29.15% of employment in Wholesale and Retail Trade Restaurants and Hotels. So they were greatly under represented in these groups. They were also somewhat under represented in Financing, Insurance, Real Estate and Building Services (43.69%). They are more than represented in Electricity, Gas and Water (84.04%), Community and Social and Personal Services (67.08%), Transport, Storage and Communication (59.55%), slightly over represented in Agriculture, Forestry and Fisheries (56.9%) and evenly present in Mining and Quarrying (50.28%). This situation is quite similar to that of oil-rich Gulf countries (Livingstone, 1993) as pointed out earlier.

On current indications, expansion of the manufacturing industry in Brunei would not lead to many new positions which would be sought by Bruneians. Expansion of Brunei's manufacturing activity appears to be one of the least attractive options for increasing employment of Bruneian citizens. From this point of view, industrialization is not attractive strategy for Brunei. While expansion in the Wholesale and Retail Trade, Restaurant and Hotel sector of Bruneians may not result in increased employment of many native Bruneians because of the low intensity of employment of Bruneians, this sector provides the second greatest employment of Bruneians absolutely after the

Community sector. Hence, for the same percentage expansion as other sectors, it would add greatly to employment of Bruneian citizens.

New Industries Based on New Technology

New technologies play an important role in international trade. Theories called neo-technology trade theories have been developed to explain how international trade and development is influenced by new technologies. Multinational companies play an important role in the use and transfer of new technologies. A country which develops a superior new commercial technology can obtain a monopoly profit from this for a time. Countries which can develop a stream of such new technologies, like the United States or Japan, can make considerable economic gains. Nevertheless, it is costly and risky to develop new technology and a country really needs some multinational corporation to get maximum benefit from its research and development efforts. Thus it is very difficult for a small country like Brunei to make effective use of this new technology strategy.

Nevertheless, Livingstone (1993, p. 119) boldly claims in relation to the oil-rich Gulf States that 'there is a strong case for concentrating promotional efforts on capital- and technology-intensive small- and medium-scale enterprises in an effort to gain a foothold in specific markets'. He further suggests that technology-intensive industries may be especially apt because they are often high users of capital 'requiring constant reinvestment in research and development (R&D) and marketing organization', (Livingstone, 1993, p. 120). However, there is little indication that a country like Brunei would have a comparative advantage in the production of innovations and in marketing.

While more can be done to advance technologies in Brunei, it may be too optimistic to expect Brunei to become a technological leader in the foreseeable future.

Singapore, while not a leading new technology producer and also a comparatively small economy has encouraged multinational corporations to undertake direct investment there. Thus Singapore is able to share in technological production and marketing associated with such technology. There appears to be fewer limitations in direct foreign investment in Singapore than in Brunei. Basically, given its resource base, Singapore has to live on its wits. It has been active in promoting a growth triangle; the Singapore-Johore-Riau Triangle (Kakazu, 1994, pp. 184-186). Whether there is scope for Brunei to create similar triangles or establish regional international cooperative arrangements in industrial production involving, say, itself and Borneo remains to be seen.

4. APEC AND BRUNEI'S DEVELOPMENT

The world is increasingly becoming divided into regional free trade associations of which the European Union (EU) and the North American Free Trade Agreement (NAFTA) are prime examples. APEC is developing and Brunei is a member of APEC. To the extent that APEC results in increased freedom of international trade, it will expand markets for those industries in Brunei which become internationally competitive. On the other hand, it may limit Brunei's ability to provide government assistance for restructuring its economy. This seems to indicate that small countries like Brunei should be given special consideration.

The EU has had to take into account the disparate position of its member states, making concessions to smaller economies, such as Ireland, and those with structural problems. APEC will also need to work out similar policies.

The *Borneo Bulletin* (24 February, 1997, p.10) reported that the Brunei Government is committed to liberalising trade, particularly within the Asean region and more widely, the APEC region. It is intended to establish an Asean free trade zone by 2003, and the Manila Action Phase calls for significant tariff cuts by APEC members by the year 2000. Nevertheless, the Minister of Industry and Primary Resources, Pehin Dato Awang Haji Abdul Rahman Taib has called for special and differential treatment for least developed countries by the World Trade Organization (WTO) and as mentioned above, some allowances may need to be made within APEC for the special problems faced by small states within it. In any case, Brunei has been very active in trying to promote new trade relations in its region. Nevertheless, sceptics (Case, 1996, p.134) suggest that it will be difficult for Brunei 'to promote self-reliance at home and new trade relations in the region'.

5. DOES BRUNEI NEED TO DIVERSIFY AND DEVELOP ITS PRIVATE SECTOR TO SUSTAIN ITS INCOME? MORE ON TRANSITION

The need for Brunei to diversify its economy and develop its private sector in order to sustain the income levels of Bruneians should not be taken for granted. In fact this is unnecessary if Brunei can accumulate sufficient investment funds and manage these wisely so as to provide sufficient future annuities. This is not inconsistent with the fact (discussed earlier) that Brunei might earn a larger income by increasing the employment of Bruneians in the private sector relative to their employment in the public sector.

Taking a simple case, it is possible to garner whether Brunei's accumulated investment funds can sustain the income levels of Bruneians. If for example, P represents Brunei's relevant population level, \hat{y} is the desired income or expenditure

level per Bruneian per year, F is the size of Brunei's investment fund, r is the rate of return on this fund and k is the income multiplier and \hat{Y} is the desired level of national income, the investment fund will need to be of size

$$F^* = P\hat{y}/rk = \hat{Y}/rk \quad (1)$$

to achieve the target level of income. This is assuming stationary conditions and that all returns are distributed to Bruneians. Thus if the rate of return on the invested funds are 10 per cent and the income multiplier is 2,

$$F^* = \hat{Y}/(0.1 \times 2) = \hat{Y}/0.2 \quad (2)$$

Thus, the investment funds of Brunei if Brunei solely relied on these for economic injections to its economy, would need to be five times its desired level of its aggregate income. If the return, however, on its funds happened to be only 5 per cent, then these funds would need to be ten times the level of desired national income and so on. Note that income multipliers in small economy such as Brunei are usually quite low due to import leakages.

The size of Brunei's investment funds are unknown. However, they were estimated in 1994 to be \$US30 billion (*Asia Week*, 1994, p. 60 and a similar figure is stated in Cleary and Wong, 1994, p. 99) but they may well now be significantly higher. Furthermore, the rate of return on these funds is not known. With a return of 10% on \$US30 billion and a population of 300,000, earnings from the fund per person for Brunei would be \$US10,000 per year and with a multiplier of 2, this would generate income of about \$US20,000 which is approximately the current per capita income level in Brunei. The fund may however be larger than \$US30 billion and the rate of return lower. The point nevertheless is that Brunei may be able to sustain its present levels of income from returns on its indirect investments after the hydrocarbons reserves run out.

If Brunei's population is increasing (as it is) and if the desired level of per capita income in Brunei rises over time, then the required capital fund for sustainability of income in Brunei must be larger initially and/or there should be appropriate additions to it with the passage of time e.g. by ploughback of some of the returns. Required variations in the investment fund can be mathematically estimated for different possible scenarios.

In practice, matters are more complicated than indicated above. The fund may have to be increased in size to allow for uncertainties and for fluctuations in rates of return. As well, some allowance may need to be made for inflation. Even though Brunei has a large and diversified portfolio of foreign investments, it is not completely insulated against such variations. Nonetheless, the wise accumulation and investment of Brunei's funds can provide Brunei with an annuity to sustain the income of its people. Brunei's accumulated and accumulating investment funds are Brunei's most significant resource for ensuring its future economic sustainability. Thus the appropriate management and accumulation of these funds is of great importance for Brunei's economic future.

Note that Brunei by investing its rental income abroad is able partially to isolate its domestic economy from current variations in its rental income from hydrocarbon extraction. This 'sterilization factor' dampens the so called 'Dutch Disease' effect in Brunei. The term 'Dutch Disease' was coined after the squeeze placed on the traditional export sectors of the Netherland's economy in the 1980s with rapid expansion of its gas industry (Corden and Neary, 1982; Wijnbergen, 1986). A boom in mineral exports such as oil or gas, can result in deindustrialization or more generally cause a decline in the production of an economy's traditional export and import competing

goods, as reported for the UK for the late 1970s and for oil exporting countries in the Middle East (Markandya and Pemberton, 1988; al-Sabah, 1988). It is not clear whether Brunei has suffered from this syndrome but lack of development of its manufacturing sector and the decline in the absolute size of its agricultural sector would be consistent with this (Ismail Duraman, pers. comm. December, 1997). On the other hand, the fact that most of Brunei's rents are invested abroad reduces the expenditure effect which would otherwise be experienced locally and so moderates the Dutch Disease.

It might be thought that one way to help sustain Brunei's economy would be to slow down the rate of extraction of its hydrocarbons. In 1981, Brunei developed such a policy to limit oil extraction but in recent years has relaxed restrictions on oil extraction.

By restricting the rate of hydrocarbon extraction by fiat, Brunei could fail to maximize its natural resource rents and therefore the capital funds available to it for investment to sustain future incomes in Brunei. In addition, such restrictions could be expected to discourage exploration for hydrocarbon deposits because limitations on the workings of any finds will reduce the expected return on investment in exploration. These factors together with the fact that rents from mining can be isolated from the local economy weakens the argument that the rate of extraction of hydrocarbons should be artificially limited in order to sustain the income of Bruneians.²

6. CONCLUDING COMMENTS

Brunei suffers from serious structural economic problems as a result of its high degree of dependence on rents from oil and natural gas; rents which are not sustainable in the long-term. While these rents are received it is very difficult to restructure and diversify Brunei's economy. This is made more difficult by the use of the public sector as the main means of redistributing that part of rent to be used for personal income.

Attention needs to be given to the distribution of more of this rent through the employment of Bruneians in the private sector.

A part of Brunei's rent is used at present to pay for guest workers which constitute about one-third of its labour force. When Brunei's hydrocarbon reserves are exhausted, it will be difficult for Brunei to sustain its degree of dependence on migrant workers. They probably provide Brunei with an extra surplus or rent at present. In the foreseeable future Brunei may however, wish to consider scaling down this dependence which will mean that Bruneians as well as doing more skilled jobs, will need to do some of the less pleasant ones done by guest workers. Kakazu (1994) mentions in relation to the Northern Marianas that a high level of guest workers there has caused social tension and suggests for this reason, dependence on guest workers should be reduced. The volume of guest workers exceed, the absorption capacity of the Northern Marianas. He also suggests that the growth of tourism in the Northern Marianas should be limited for environmental reasons. Otherwise, environmental damage may deter Japanese tourists. I mentioned tourism development in Brunei as a possible growth industry. However, Brunei would also have to be careful to avoid the type of problems experienced by the Northern Marianas.

A review of the theory of international trade was undertaken to see the extent to which it might provide a guide to industrial development and the selection of industries for economic diversification in Brunei.³ Orthodox traditional international theory produces an inadequate guide because it is too static in nature. Some Government intervention in Brunei is likely to be needed to bring about smooth restructuring of its economy because of overexpansion of its public sector and future anticipated depletion of its oil and gas reserves. A start on Brunei's restructuring needs to be done before

'depletion day'. It is not too early now to reduce the size of the public sector. Early efforts at restructuring are likely to be sensible bearing in mind the existence of lags, that learning about industries and skilling takes considerable time and is to a large extent a trial-and-error process, that is an evolutionary one. In order to allow the restructuring of Brunei's economy to proceed with government assistance, Brunei may require special consideration within APEC. However, given wise accumulation and investment of its investment funds, Brunei may not need to depend heavily on diversification for sustainability of its income.

NOTES

1. One objection to Hartwick's rule is that Hartwick does not allow for the depreciation of capital. Nevertheless, sustainability is more likely to be obtained by investing returns than by consuming these.
2. Note that Brunei is a small economy in relation to the rest of the world and only its own self-interest is being considered here. By contrast, it is *possible* that global income may be sustained for longer if global extraction of non-renewable resources, as suggested for example by H. Daly, is limited. Because of the prisoners' dilemma problem, neo-Malthusian arguments may apply globally but not locally. Locally neoclassical economic theory may apply.
3. *The Seventh National Development Plan 1996-2000* for Brunei Darussalam is not very specific about the industries which Brunei should encourage but states that it should adopt a 'Niche' approach to sectoral development.

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Table 1 Employment and Intensity of Employment of Brunei Citizens by Industry Groups in Ascending Order of Intensity, 1991.

Group	Number of Brunei Citizens	Intensity: Bruneians Employed in Group (%)
1. Construction	2,088	14.76
2. Manufacturing	760	18.67
3. Wholesale and Retail Trade, Restaurants and Hotels	4,640	29.15
4. Financing, Insurance, Real Estate, Building Services	2,569	43.69
5. Mining and Quarrying	2,648	50.28
Average of All Groups		51.09
6. Agriculture, Fisheries, Forestry	1,239	56.9
7. Transport, Storage and Comm.	3,236	59.55
8. Community, Social and Personal Services	35,486	67.8
9. Electricity, Gas and Water	1,874	84.04

Source: Derived from *Brunei Population Census 1991*, Economic Planning Unit, Ministry of Finance, Bandar Seri Begawan, Brunei

Table 3			
Brunei's Workforce by Major Industries and Public and Private Sector Employment, 1991. Numbers and percentage of employment			
Industries	Persons	Public	Private
Agriculture, Forestry & Fishing	2,162 (2.0)	803 (1.6)	1,359 (2.6)
Mining, Quarrying & Manufacturing	9,397 (8.8)	305 (0.6)	9,092 (15.7)
Mining & Quarrying	5,109 (4.8)		
Manufacturing	4,388 (4.0)		
Electricity, Gas & Water	2,223 (2.1)	1,985 (4.0)	238 (0.04)
Construction	14,45 (13.3)	1,651 (3.4)	12,494 (21.6)
Wholesale, Retail Trade, Restaurants & Hotels	15,404 (14.4)	462 (0.9)	14,942 (25.9)
Transport, Storage & Communication	5,392 (5.1)	1,692 (3.6)	3,700 (6.4)
Financial, Insurance, Real Estate & Business Services	5,807 (5.4)	826 (1.7)	4,988 (8.6)
Community, Social & Personal Services	53,121 (48.8)	41,256 (84.2)	10,865 (18.8)
Inadequately defined	95 (0.1)	18 (..)	77 (..)
Total	106,746 (100) (100)	48,998 (100) (46)	57,748 (100) (54)

Source: Based on Economic Planning Unit (1993)

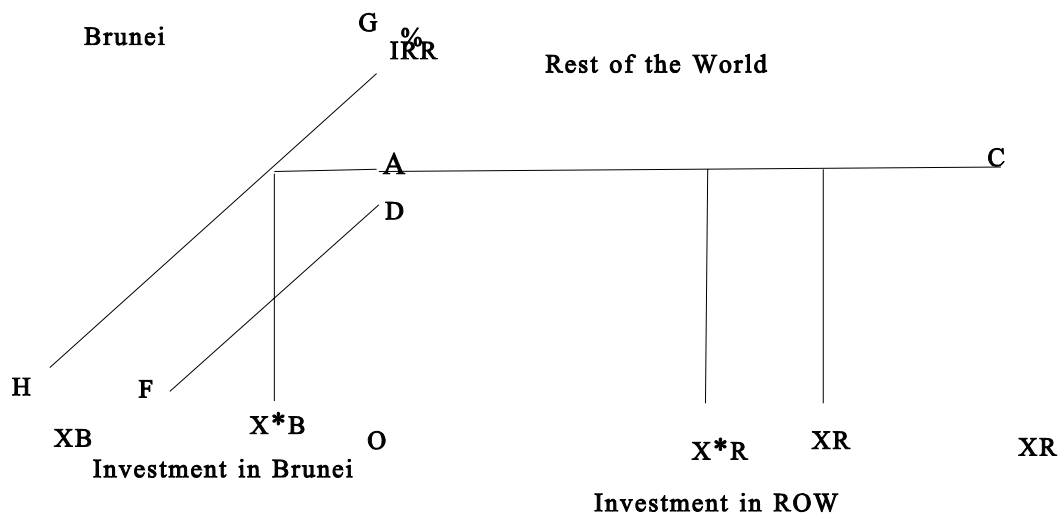
Notes: Figures in parentheses are percentages. They may not add to 100 because of rounding.

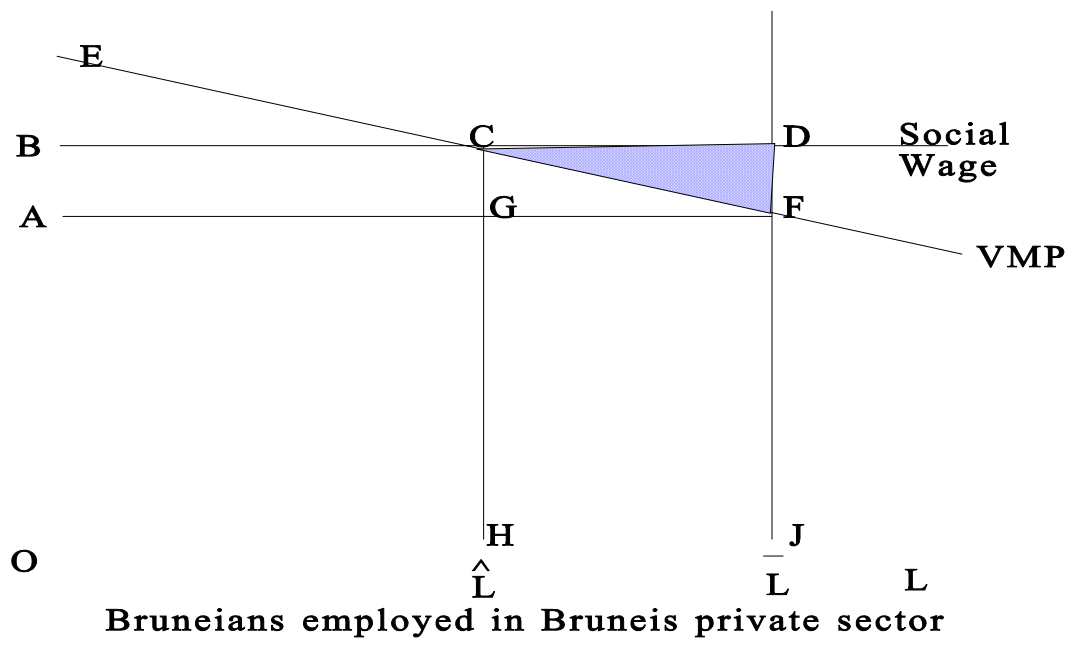
Table 2
Categories of Commodities Imported to Brunei in 1971 and 1991

Items	Imports (B\$ million)		Percentage (%)		% (a) change
	1971	1991	1971	1991	
Food and live animals	37.5	247.3	8.2	12.9	57.3
Beverages and Tobacco	7.7	46.0	1.7	2.4	41.2
Crude materials, inedible except fuel	6.6	23.6	1.5	1.2	-20
Mineral fuels, lubricants and related materials	4.6	11.7	1.0	0.6	-40
Animals and vegetable oils, fats and waxes	1.4	6.5	0.3	0.3	0
Chemicals and related products	17.7	120.7	3.9	6.3	61.5
Manufactured goods classified by materials	135.7	526.9	29.7	27.4	-7.7
Machinery and transport equipment	214.9	736.1	47.0	38.3	-18.5
Miscellaneous manufactured articles	21.8	194.4	4.8	10.1	110.4
Commodities and transactions	8.7	9.2	1.9	0.5	-73.7
Total	56.6	1922.4	100	100	0

Source: Based on Economic Planning Unit, (1982, 1992) statistics.

(a) Note: Percentage change in proportion of total imports.





Biographical Note

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