

CHAPTER TWO

THE FORESTRY SECTOR IN SARAWAK

2.1 INTRODUCTION

This chapter examines the forestry sector in Sarawak. Firstly, it studies the forest resources of the state. Secondly, it evaluates the contributions of the forest sector to the state. The environmental role of the forest and other functions such as the maintenance of biodiversity, provision of non-wood products for forest dwellers, recreation and tourism potential will be discussed. This chapter will highlight the changing size of the forest sector relative to other industries in the state. Trends in timber exports from the state will also be analysed. Since the forest sector is linked to timber-related manufacturing industries, these industries will be described as well. The efficiency of Sarawak's wood and wood-based industries will be compared with rest of the nation. Assessment of exports will include the types of forest products exported and the destination of exports. Sarawak's participation in the world timber trade will also be reviewed - this will include competition from other timber producing countries, particularly producers of tropical timber, as well as buyers. Finally, this chapter will also look at state government revenue from the forests.

2.2 FOREST LAWS

In 1991, the total area under natural forest cover was 8.6 million hectares, i.e. about 70 per cent of the total land area of Sarawak (12.45 million hectares). Another 3.33 million hectares was under shifting cultivation. The area under shifting cultivation increased from 2.25 million hectares in the 1960s to 3.33 million hectares in 1985 (Dimin, 1988; GTZ, 1992), with this area maintained since. The extent of secondary forest included in this category is unknown. Another 0.33 million hectares were under tree crop plantations, of which only 6,000 hectares were forest plantations. Only 0.1 million hectares were permanent agriculture areas.

The natural forest consisted of Permanent Forest (4.43 million hectares), Stateland Forest (3.9 million hectares) and National Park and Wildlife Sanctuary (0.3 million million hectare). Permanent Forests have been constituted under Land (Classification) Ordinance, 1948. Constitution is undertaken by the Permanent Secretary of the Ministry responsible for Forestry on the advice of the Director of Forests, after an inquiry in which the local people are supposedly consulted and the existence of native rights investigated. Similarly, the Permanent Secretary has the power to revoke the Permanent Forest status of any forestland. The constitution of Permanent Forest was meant to achieve the objectives of protection and production laid down in Section (I) of the General Statement of Policy on Forest. In selecting areas for constitution as Permanent Forest, the policy states that consideration has been given to:-

- (a) the nature of the terrain, which may limit the potential productivity of a forest so that it is impossible to combine the objectives of protection and production,
- (b) even distribution throughout the state in order to provide for local demand

for forest produce, and

- (c) the establishment of a balanced economy in all districts and the tendency to rely heavily upon a few industries in newly developed areas. This is because it has been repeatedly shown that forests may provide a means of livelihood for native peoples when food crops fail and other industries are depressed.

The cultivation of essential foodstuffs by means of settled agriculture, including properly managed bushfallow on suitable soils, is supposed to take precedence over forest conservation after due consideration of the above. Similarly, mining takes precedence over forest conservation after due consideration of the above because Sarawak has few minerals.

As timber is slow growing, security is an essential requirement for successful forest management. Hence the revocation of Permanent Forest status, particularly of forests under systematic plans of management, would expect equal and careful consideration. Based on this rationale, the exercise of any right or privilege of a specific community that would prevent successful management of a Permanent Forest is prohibited and the commutation of such rights is provided for under Section 15(a) and 35 of the Forest Ordinance, 1953. Rights or privileges permitting the extension of shifting cultivation in a Permanent Forest are therefore inadmissible. Native Customary Law is only recognised for rights over young secondary forest (*temuda*), and this limitation is strictly enforced. The clauses providing for admission of rights and concession of privileges are said to be worded such that they may be subjected to "reasonable control" in accordance with Sections 9 and 34 of the Forest Ordinance, 1953.

It may appear that the Forest Policy on the constitution of Permanent Forest encompasses environmental considerations, the sustainability of forest resources, a balanced economy throughout the state and more importantly the livelihood of the majority indigenous peoples at all times – including incidences of natural disasters causing crop failures and economic depression adversely affecting industries. However vesting powers for the constitution of Permanent Forest in the Permanent Secretary of the Forestry Ministry ultimately confines decision-making to the Minister of Forestry, whose directives the Permanent Secretary implements. As we shall see later, the various Ministers of Forestry as well as their close associates and family members have stakes in the timber industry. While the Forest Ordinance, 1953 facilitates “reasonable control” for sound forest management, the exercise for such control have been lacking in areas where politically linked businesses contravene the Forest Policy. Conversely the strict enforcement of the Ordinance in areas adversely affecting indigenous communities without workable alternative compensation would be inconsistent with the Forest Policy.

The Forest Law of Sarawak (Forest Ordinance, 1953) provides for three types of Permanent Forest. The three types of forests are: (i) Forest Reserves, (ii) Protected Forests and (iii) Communal Forests.

Forest Reserves are Permanent Forests where the strictest form of control is necessary. They may be productive forests, forests with particular values and important functions. They may be productive forests destined to be the principal sources of supplies of timber and other forest products. They may be forests that are rich in particular values, such as ironwood (belian). Only in exceptional cases are they supposed to be gazetted for other uses. The gazettement of Permanent Forests as Forest Reserves takes precedence over gazettement as Protected Forests where the surrounding

population is so dense that the admission of general rights and privileges in Protected Forests would prohibit successful management of the forest as water catchment areas. Gazetting Forest Reserves also takes precedence over any communal need for forest supplies as in the case for Communal Forests because of their national and economic importance.

In Protected Forests, the Forest Law admits considerable rights to the people of Sarawak to take forest produce for domestic use, to hunt, to fish, and to pasture cattle. A Permanent Forest may be constituted as a Protected Forest if the primary purpose of such constitution is general protection of soils and waters, and the terrain or vegetation is of such a nature that intensive management as a productive forest is unlikely to be feasible. Alternatively, a Protected Forest may be constituted in little known territory, where the correct use of all lands has yet to be determined. The Permanent Secretary of the Ministry responsible for Forestry is empowered to change the status of a Protected Forest to that of a Forest Reserve.

A Communal Forest will be constituted only where "it is clearly the desire of a settled community to set aside a convenient area of woodland to provide for domestic forest produce needs". Such forests are under the control of the District Administration. However, the Administration has to consult the Forest Department on all technical matters of importance. Communal Forests should normally be large enough to permanently supply the domestic needs of the community specified, allowing for a reasonable increase in population. Exceptions may be made when the necessity of preserving the forests for protective reasons is considered with the need for domestic forest produce supplies.

The law states that the constitution of a Permanent Forest as a source of domestic supplies is desirable, even where the community concerned does not express

the wish. The forest may then be constituted as a Forest Reserve, in which case all necessary privileges may be granted to the specified community. In this case, the forest is said never be constituted as a Protected Forest, which permits general rights exceeding the limits of the specified community. These arrangements recognise the local people's rights to collect forest produce for their own communities. They have been used to justify the policy to categorise Forest Reserves, Protected Forests and Communal Forests together, without distinction, into three sub-categories as of 1992 (personal communication, Department of Forestry, 1992). Legally, however, the change in classification may give rise to vaguer definitions of indigenous rights. In fact, claims to forest rights have to be substantiated by Customary Law or by evidence of their exercise over long and continuous periods. A clear distinction also has to be made between an established right and a conceded privilege.

Stateland Forest can also be constituted under the Forest Ordinance, 1958. Control over the logging in the Stateland Forest is non-existent. After logging the land is usually converted into agricultural land. It would appear that the Forest Ordinance 1958 favour logging by enabling the constitution of Stateland Forest. Rent seeking in the industry and the link between logging companies and politicians (see Chapter 4) suggests attempts to control access to forest resources through legal amendments of the Forest Ordinance, 1953.

National Parks and Wildlife Sanctuaries are constituted under the National Parks and Wildlife Ordinance 1958. There are eight national parks and three wildlife sanctuaries in Sarawak.

The area under forestland has been decreasing (Table 2.1). It decreased from 74.9 per cent of Sarawak's land area in 1951 to 68.1 per cent in 1998. In 1992, the Sarawak Government planned for the conversions of certain Stateland Forest to

Permanent Forest Estate status. However, these plans have not materialised. In fact, the area under both Stateland Forest status and Permanent Forest Estate status fell during the period under review. Although certain Stateland Forest has been gazetted as Permanent Forests Estate since 1951, logged Stateland Forest have been converted into agricultural land. This explains the decrease in forestlands. Besides the Indonesian side of Borneo and Iran Jaya, Sarawak is the only other place in Southeast Asia where there is still substantial part of unlogged virgin forest. However, this area has been considerably reduced in the last two decades.

Table 2.1: Sarawak – Forest Area by Classification, 1970-2000 (thousand hectares)

Year	Total Land Area	Total Forest Area	Permanent Forest Estate			Total	Other forests				Total
			Forest Reserves	Protected Forests	Communal Forests		Totally Protected Areas			Stateland Forest	
							National Parks	Wildlife Sanctuaries	Sub-total		
1970	12,325.4	9432.5	684.0	2410.0	30.3	3124.3	n.a.	n.a.	n.a.	6308.2	
1975	12,325.4	9432.5	716.9	2396.2	30.6						
1980	12,325.4	9431.5	756 (6.1%)	2422 (19.7%)	5.4	3183	n.a.	n.a.	n.a.	6248.2 (50.7%)	
1985	12,325.4	9438.4	847.4	3789.2	5.2	4668.8	81.1	176.2	257.3	4796.2	
1986	12,325.4	9438.4	824.4	3765.1	5.2	4594.7	81.1	176.2	257.3	4843.7	

(Continued)

Table 2.1: Sarawak – Forest Area by Classification, 1970-2000 (thousand hectares)(continuation)

Year	Total Land Area	Total Forest Area	Permanent Forest Estate			Other forests					
			Forest Reserves	Protected Forests	Communal Forests	Total	Totally Protected Areas			Stateland Forest	Total
							National Parks	Wildlife Sanctuaries	Sub-total		
1987	12,325.4	9438.4	796.6	3792.5	5.2	4594.3	81.1	176.2	257.3	4587.4	4844.7
1988	12,325.4	9438.4	768.7	3788.4	5.2	4562.3	81.1	176.2	257.3	4586.8	4844.1
1989	12,315.7(a)	8716.3	853.8	3638.2	5.6	4497.6	n.a.	n.a.	55.2	3963.4	4329.7
1990	12,315.7	8700.4	n.a.	n.a.	5.3	4471.1	n.a.	n.a.	290.0	3939.4	4229.4
1991	12,315.7	8686.0	n.a.	n.a.	n.a.	4456.6	n.a.	n.a.	290.0	3939.4	4229.4

(continued)

Table 2.1: Sarawak – Forest Area by Classification, 1970-2000 (thousand hectares)(continuation)

Year	Total Land Area	Total Forest Area	Permanent Forest Estate				Other forests				
			Forest Reserves	Protected Forests	Communal Forests	Total	Totally Protected Areas				
							National Parks	Wildlife Sanctuaries	Sub-total		
1992	12,315.7	8647.3	n.a.	n.a.	n.a.	4418.0	n.a.	n.a.	290.0	3939.4	4229.4
1993	12,315.7	8626.1	n.a.	n.a.	n.a.	4396.7	n.a.	n.a.	290.0	3939.4	4229.4
1994	12,315.7	8563.9	n.a.	n.a.	n.a.	4372.7	n.a.	n.a.	291.0	3900.1	4191.1
1995	12,315.7	8499.7	n.a.	n.a.	n.a.	4346.2	n.a.	n.a.	291.0	3862.4	4153.4
1996	12,315.7	8477.7	n.a.	n.a.	n.a.	4324.2	n.a.	n.a.	291.0	3862.4	4153.4

(continued)

2.3 ENVIRONMENTAL ROLE AND OTHER FUNCTIONS

The forest also plays a significant role in protecting and maintaining sound climatic and physical conditions, safeguarding water supplies and ensuring environmental stability. Other functions include maintenance of biodiversity and supplies of non-wood produce, recreation and tourism.

One of the most important functions of Sarawak's forests has been conservation of watersheds and maintenance of water quality. Interception of precipitation by the forest canopy provides a buffer against the energy of falling water, and thus reduces surface runoff and likely soil erosion. The high moisture storage potential of the forest, including its soils, also provides for a more uniform discharge of sub-surface water into streams, thus reducing stream flow variability and ensuring more constant water supplies.

The role of forests in the global carbon cycle, and hence in greenhouse warming, can be significant. Forests store carbon in the form of cellulose and other compounds. The depletion of forests releases part of this carbon to the atmosphere and contributes to greenhouse warming. On the other hand, the net growth of forests consumes carbon dioxide, and thus reduces greenhouse warming. Careful logging has a positive effect, as more carbon maybe sequestered by the plant growth stimulated than is released by vegetative decay. Only complete forest depletion, or accumulation of a lot of logging waste or forest burning has negative effects for 'greenhouse warming' (World Bank, 1991).

The tropical rainforests of Sarawak belong, together with the forests of Sabah and the remaining part of the Borneo Island, to the largest forest resources in the world. They are very rich in flora and fauna. For example, there are about 8,000 different species of flowering plants, including 4,000 different tree species. There are some

20,000 different animal species, most of them insects. Sarawak has the highest species density in the world, about 50 per square kilometre. Many of these species are indigenous and only found in this part of the world. This is because Sarawak's forest contains a high proportion of original habitats. Sarawak has been ranked among the world's ten "top spots", defined as forest areas with exceptional species diversity and high endemism, even though endemic species are not as many as in other parts of Borneo or Peninsular Malaysia. However, Sarawak's biodiversity faces imminent threat of destruction (World Bank, 1991).

Forest dwellers and those who reside near forests depend on the forest for a variety of products for their subsistence. The forest is also as an additional source of income. Wildmeat, wild vegetables (such as sago, ferns or bamboo shoots), fruits and fish from clear forest rivers provide food for much of the rural population. They are also traded in local markets. Bird nests, engkabang (illipe nut) and rattan are products of high economic value and are even exported. Medicinal and ornamental plants, spices, resins, animal skin and fodder for domestic animals are other highly valued products of the forests of Sarawak. Studies by de Beer and McDermont (1989) as well as Caldecott (1986) explain how hunter-gatherers can base their entire livelihood on the tropical forests. It has been estimated that the non-wood product (mainly meat and general protein sources) supply on each hectare has a net present value of RM810-2, 105 (World Bank, 1992: 50).

The use and value of recreation services provided by the forests are likely to rise rapidly in future. Average household income for Sarawak grew from RM427 per month in 1976 to RM994 in 1987 and RM2242 in 1997 (various *Malaysia plans*). The proportion of Sarawak's population in urban areas increased from 18 per cent in 1980 to 38 per cent in 1991 (Department of Statistics, Malaysia). The growth in income and

urbanisation increase the demand for recreation services. Forest recreation will cater to residents from urban Sarawak as well as foreign visitors, with the prospect of tourism services capable of generating substantial foreign exchange.

The number of tourist and travel agencies in Sarawak increased from 40 in 1974 to 86 in 1984 and 123 in 1994. Their revenues were RM1.3 million, RM8.3 million and RM58.6 million respectively. The number of workers employed grew from 175 to 431 and 946 over this period. Average salaries of the workers were RM175, RM461 and RM384 per month respectively. The number of visitors to Sarawak increased from 203,513 in 1988 to 3,067,703 in 1996 (*Yearbook of Statistics, Sarawak*, various issues). Although tourists have visited Sarawak for a variety of reasons, adventure tourism and eco-tourism are recent marketing priorities. They also enhance Sarawak's other attractions. The tropical climate also attracts seasonal tourists from developed temperate countries. Malaysia's low exchange rate explains Sarawak's competitive pricing for tours. During the recent Asian financial crisis, Sarawak was a favourite destination for tourists from the Far East and other countries in the Association of Southeast Asia (ASEAN), particularly Singapore.

National parks and wildlife sanctuaries have been gazetted throughout Sarawak. The national parks and forests in Kuching Division such as the Bako National Park, the forest areas in Damai, Santubong, Lundu and the National Park at Gunung Gading are the most strategically located for the development of tourism, both domestic and foreign. They are accessible to foreign visitors entering Sarawak via Kuching. They are also close to large urban populations.

Tourism and recreational benefits from forest resources involve inter-ASEAN country collaborative linkages and inter-industry domestic linkages. ASEAN collaboration, such as the Brunei-Indonesia-Malaysia-Philippine (East ASEAN) Growth

Area, has been working on joint tourism packages. Adventure and eco-tourism in Sarawak promote other industries related to handicrafts, souvenirs, hotels and restaurants. Programmes in physical fitness, team building and leadership have also been developed for domestic and foreign participants in rainforest settings, e.g. at Kem Permai. Foreign exchange earnings for Sarawak could be increased with the increased frequency of flights between Kuching and Singapore as well as the scheduling of flights between Kuching and other capital cities in foreign countries. Nevertheless, realisation of such potential benefits for the state depends on federal government decisions. The Sarawak Ministry of Tourism has been requesting the Federal Ministry of Transport for Singapore Airlines to land more than twice a week at Kuching International Airport.

Table 2.2: Sarawak – Gross Domestic Product in Constant 1978 Prices (RM million)

Year	Agriculture and livestock	Forestry and logging	Fishing	Mining and quarrying	Manufacturing	Construction	Services	Total
1981	333 (9.1%)	476 (12.9%)	139 (3.8%)	1,089 (29.6%)	239 (6.5%)	216 (5.9%)	1,187 (32.3%)	3,679
1982	328 (8.2%)	620 (15.5%)	137 (3.4%)	1,174 (29.4%)	252 (6.3%)	228 (5.7%)	1,252 (31.4%)	3,991
1983	343 (7.5%)	657 (14.3%)	139 (3.0%)	1,543 (33.6%)	384 (8.3%)	225 (4.9%)	1,308 (28.4%)	4,599
1984	345 (6.8%)	623 (12.2%)	130 (2.6%)	1,799 (35.3%)	548 (10.8%)	234 (4.6%)	1,411 (27.7%)	5,090
1985	376 (7.1%)	656 (12.4%)	126 (2.4%)	1,805 (34.1%)	622 (11.8%)	260 (4.9%)	1,445 (27.3%)	5,290

(continued)

Table 2.2: Sarawak – Gross Domestic Product in Constant 1978 Prices (RM million) (continuation)

Year	Agriculture and livestock	Forestry and logging	Fishing	Mining and quarrying	Manufacturing	Construction	Services	Total
1986	390 (7.2%)	629 (11.7%)	130 (2.4%)	1,899 (35.2%)	691 (12.8%)	229 (4.2%)	1,429 (26.5%)	5,397
1987	407 (7.4%)	714 (13.0%)	133 (2.4%)	1,804 (32.9%)	751 (13.7%)	204 (3.7%)	1,470 (26.8%)	5,483
1988	464 (8.2%)	752 (13.2%)	137 (2.4%)	1,798 (31.6%)	794 (14.0%)	193 (3.4%)	1,550 (27.3%)	5,688
1989	474 (7.7%)	949 (15.4%)	133 (2.2%)	1,899 (30.8%)	844 (13.7%)	189 (3.1%)	1,681 (27.3%)	6,169
1990	499 (7.4%)	985 (14.7%)	135 (2.0%)	2,054 (30.6%)	856 (12.8%)	218 (3.3%)	1,957 (29.2%)	6,704

(continued)

Table 2.2: Sarawak – Gross Domestic Product in Constant 1978 Prices (RM million) (continuation)

Year	Agriculture and livestock	Forestry and logging	Fishing	Mining and quarrying	Manufacturing	Construction	Services	Total
1991	513 (7.3%)	1,612 (22.9%)	128 (1.8%)	2,154 (30.6%)	1,071 (15.2%)	240 (3.4%)	1,317 (18.7%)	7,035
1992	508 (7.0%)	983 (13.5%)	131 (1.8%)	2,164 (30.0%)	1,100 (15.1%)	370 (5.1%)	2,038 (27.9%)	7,294
1993	510 (6.7%)	873 (11.5%)	123 (1.6%)	2,090 (27.6%)	1,273 (16.8%)	468 (6.2%)	2,245 (29.6%)	7,582
1994	553 (6.6%)	851 (10.1%)	135 (1.6%)	2,208 (26.2%)	1,492 (17.7%)	755 (8.9%)	2,446 (29.0%)	8,440
1995	561 (5.8%)	839 (8.7%)	140 (1.5%)	2,775 (28.8%)	1,846 (19.2%)	800 (8.3%)	2,667 (27.7%)	9,628

(continued)

Table 2.2: Sarawak – Gross Domestic Product in Constant 1978 Prices (RM million) (continuation)

Year	Agriculture and livestock	Forestry and logging	Fishing	Mining and quarrying	Manufacturing	Construction	Services	Total
1996	621 (5.8%)	839 (7.8%)	142 (1.3%)	3,109 (28.9%)	2,267 (21.0%)	876 (8.1%)	2,921 (27.1%)	10,775
1997	679 (6.1%)	877 (7.8%)	165 (1.5%)	2,949 (26.3%)	470 (22.1%)	949 (8.5%)	3,105 (27.7%)	11,194
1998	616 (6.0%)	590 (5.7%)	133 (1.3%)	2,923 (28.5%)	2,343 (22.8%)	760 (7.4%)	2,902 (28.3%)	10,267

Source: Department of Statistics, Malaysia, *Yearbook of Statistics, Sarawak*, various issues

2.4 CONTRIBUTIONS TO GROSS DOMESTIC PRODUCT

In 1996, gross domestic product (GDP) from forestry and logging in Sarawak was RM2, 135 million. Forestry and logging have been important in the state's economy. For the period 1981-98, GDP from forestry and logging ranged from 5.7 per cent to 22.9 per cent of the state's GDP. From 1981, GDP generated by forestry and logging has exceeded that from agriculture and livestock until 1997. The largest difference between the two sectors was 15.7 per cent of GDP in 1991, while the smallest gap was 1.8 per cent in 1997. GDP from forestry and logging has always been more than that from fishery, whose contribution was in the range of 1.3 to 2.4 per cent of GDP. GDP from mining and quarrying registered the highest proportion of 26.2 to 35.3 per cent of GDP during the period of review. However, most of the GDP was from the petroleum industry and most revenue from this industry accrue to parties outside the state, namely Sarawak Shell Sendirian Berhad, which is predominantly owned by foreigners, the federal-owned Petroleum Nasional Berhad or Petronas as well as the federal government itself. The construction sector was larger than forestry and logging only since 1996, while the large services sector (18.7 to 32.3 per cent of GDP for the period of review) is inefficient and dependent on the general growth of the economy (Table 2.2).

The manufacturing sector has expanded from 6.5 per cent of GDP in 1981 to 22.8 per cent in 1998. Wood and wood-based industries, which source local timber, formed the third largest industries in terms of gross value of output, after food and industrial chemicals (Table 2.3). The gross value of wood and wood-based manufactures in 1996 was RM3, 788 million, compared to RM10, 078 million for food and RM5, 165 million for industrial chemicals. Value added from wood and wood-based industries for the year was RM1, 241 million, after RM2, 147 million for

industrial chemicals. The wood and wood-based industries is labour-intensive. They provide more employment opportunities (40,537) compared to the food (5,694) and industrial chemical industries (1,420). Value added per worker for wood and wood-based manufactures were higher than those for food or industrial chemicals (over RM30, 000 compared to RM0.30 and RM1.50 respectively). There were more establishments in the wood and wood-based industries (473) than in the food (325) and chemical industries (12), indicating a more competitive market structure.

Despite being more labour-intensive, the wood and wood-based industries in Sarawak achieved higher value-added per worker than the average wood and wood-based industry in Malaysia (Table 2.4). They also improved the overall performance of Sarawak's manufacturing sector in terms of labour productivity. Value added per worker for the manufacturing sector in the state (RM53, 572) in 1994 was less than the national average (RM613, 194). Without the contribution from the wood and wood-based industries, the state average would have been even lower than the national average. In fact, Wee (1995: Table 3.5) showed that Sarawak and Sabah were relatively more specialised in wood-based manufactures than Peninsula Malaysia.

Table 2.3: Sarawak – Principal Statistics of Major Industries, 1996

	Food	Industrial Chemicals	Wood & Wood-based Manufactures
No. of establishments	325	12	473
Gross value of output (RM million)	10,708	5,165	3,788
Value added (RM million)	193	2,147	1,241
No. of workers	5,694	1,420	40,537
Salaries	37	66	325
Salary (RM per month)	542	704	667
Fixed assets (RM million)	368	6,515	3,043
Value added per worker	RM0.03	RM1.50	30,614
Value added per RM of fixed assets	RM0.50	RM0.30	RM0.41

Sources: Department of Statistics, Malaysia, *Yearbook of Statistics, Sarawak, 1997*, Table 5.2

Table 2.4: Malaysia - Manufacturing Industries, 1994

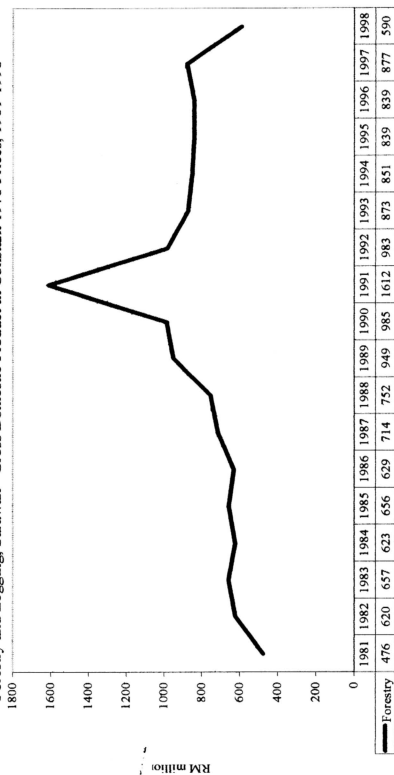
	Malaysia	Sarawak
All manufacturing institutions: - <i>Value added per worker</i> <i>Value added per RM fixed asset</i>	<i>RM613, 194</i> <i>RM0.04</i>	<i>RM53, 372</i> <i>RM0.41</i>
Wood and wood-based industries: - <i>Value added per worker</i> <i>Value added per RM fixed asset</i>	<i>RM22, 451</i> <i>RM0.60</i>	<i>RM30, 614</i> <i>RM0.41</i>

Sources: Department of Statistics, Malaysia, *Yearbook of Statistics, Malaysia, 1997*
Yearbook of Statistics, Sarawak, 1997

Nevertheless, GDP from forestry and logging (in constant 1978 prices) has been declining since the peak in 1991 (Figure 2.1). This is due to the drop in timber prices, which also caused a decrease in production as logging contractors responded to the price signals (see Figure 2.2). In some instance, suppliers stocked up logs to sell only when prices are more lucrative.

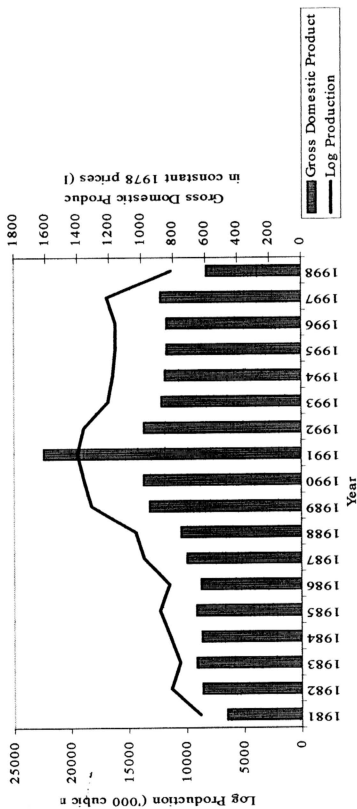
Figure 2.1:

Forestry and Logging, Sarawak - Gross Domestic Product in Constant 1978 Prices, 1981-1998



Sources: Department of Statistics, Malaysia, *Yearbook of Statistics*, Sarawak, various issues

Figure 2.2: Sarawak - Log Production and GDP from Forestry and Logging, 1981-1998



Sources: Department of Statistics, Malaysia, *Yearbook of Statistics, Sarawak*, various issues

Table 2.5: Sarawak - Principal Exports by Value and Percentage, 1965-1997 (RM Million)

	1965	1970	1975	1980	1985	1990	1991	1995	1996	1997
Petroleum/ Petroleum products	218.5 (53.3%)	327.0 (48.7%)	1,025.3 (67.7%)	2,515.2 (62.2%)	3,646.4 (42.8%)	3,620.5 (32.1%)	3,614.4 (27.7%)	3,779.0 (24.1%)	4,808.5 (26.0%)	5,093.7 (24.2%)
Liquefied Natural Gas					2,299.7 (27.0%)	2,634.8 (23.3%)	3,280.0 (25.2%)	3,068.8 (19.6%)	4,745.9 (25.8%)	6,259.5 (29.7%)
Urea						155.7 (1.4%)	237.0 (1.8%)	302.1 (1.9%)	300.4 (1.6%)	181.2 (0.9%)
Timber/ Timber products	89.0 (21.8%)	198.2 (29.5%)	253.3 (16.7%)	993.8 (24.6%)	1,571.1 (18.5%)	3,325.9 (29.4%)	3,827.8 (29.4%)	5,189.3 (33.1%)	5,528.6 (30.1%)	5407.1 (25.6%)
Pepper (Black & White)	41.7 (10.2%)	56.2 (8.4%)	100.9 (6.7%)	103.9 (2.6%)	141.3 (1.7%)	127.1 (1.1%)	85.1 (0.7%)	104.5 (0.7%)	129.1 (0.7%)	304.3 (1.4%)

(continued)

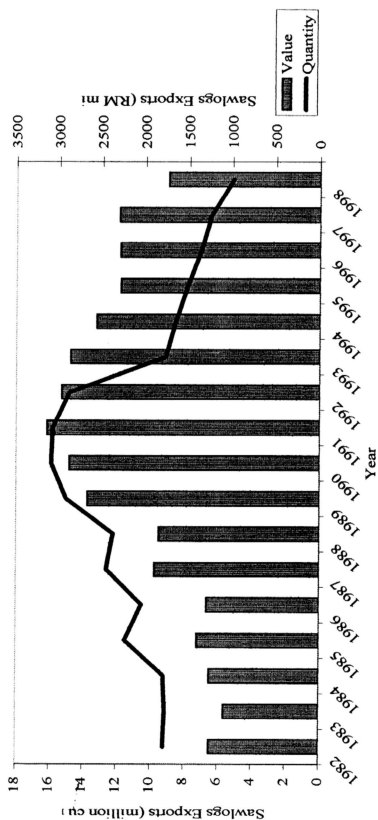
Table 2.5: Sarawak - Principal Exports by Value and Percentage, 1965-1997 (RM Million) (continuation)

	1965	1970	1975	1980	1985	1990	1991	1995	1996	1997
Rubber	59.4 (14.5%)	24.0 (2.6%)	35.9 (2.4%)	88.1 (2.2%)	27.5 (0.3%)	31.9 (0.3%)	28.9 (0.2%)	52.6 (0.3%)	40.5 (0.2%)	17.9 (0.1%)
Palm Oil			3.9 (0.3%)	32.6 (0.8%)	39.2 (0.5%)	67.9 (0.6%)	88.6 (0.7%)	322.3 (2.1%)	358.4 (1.9%)	414.1 (2.0%)
Cocoa			0.2 *	7.6 (0.2%)	49.9 (0.6%)	54.3 (0.5%)	50.3 (0.4%)	19.9 (0.1%)	15 (0.1%)	12.7 (0.1%)
Others		65.9 (9.8%)	95.3 (6.3%)	300.2 (7.4%)	736.1 (8.6%)	1,275.4 (11.3%)	1,813.3 (13.9%)	2,820.7 (18.0%)	2,503.5 (13.6%)	3,390.4 (16.0%)
Total	408.6 (100%)	671.3 (100%)	1,514.8 (100%)	4,041.4 (100%)	8,511.2 (100%)	11,293.5 (100%)	13,026.0 (100%)	15,659.2 (100%)	18,429.9 (100%)	21,089.9 (100%)

* Negligible

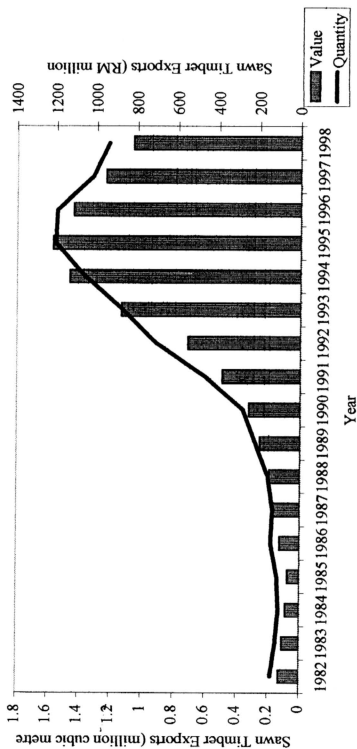
Sources: *Annual Statistical Bulletin, Sarawak*, various issues

Figure 2.3: Sarawak - Sawlogs Exports, 1982-1998



Sources: Department of Statistics, Malaysia, *Yearbook of Statistics, Sarawak*, various issues

Figure 2.4: Sarawak - Sawn Timber Exports, 1982-1998



Sources: Department of Statistics, Malaysia, *Yearbook of Statistics, Sarawak*, various issues

2.5 EXPORTS

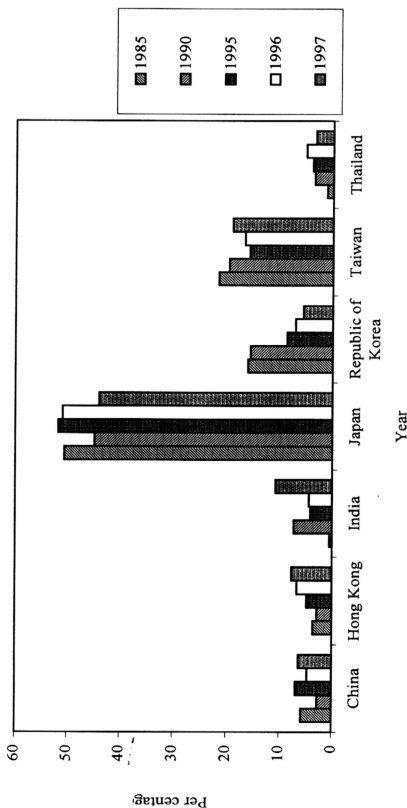
Sarawak is an export-oriented economy. In 1997, exports of goods and services were equivalent to 86.7 per cent of its GDP (*Yearbook of Statistics, Sarawak, 1998*). Timber and timber products fetched RM5409.1 million for the year, second only to crude petroleum (RM5093.7 million) and liquefied natural gas (RM6259.5 million). The major timber products were sawlogs, sawn timber as well as manufactures, such as plywood, wooden dowels and wooden mouldings. Sawlogs and sawn timber represented 15.4 per cent of export value, while manufactures brought 10.2 per cent of export value. Timber and timber products have earned considerable foreign exchange for Sarawak since 1965. Their share of exports ranged from 16.7 to 33.1 per cent in the period 1965-1997 (Table 2.5). A downward trend has been registered in recent years. Depleting resources accounted for the decline. Nonetheless, the growth of timber manufacturing industries has cushioned the fall. In contrast, the proportion of exports from crude petroleum registered a distinct decline during the period (from 53.3 to 24.2 per cent). Only liquefied natural gas seemed to maintain its contribution.

Sawlog exports rose from 9.2 million cubic metres in 1982 to a peak of 15.9 million cubic metres in 1990, before falling to 5.1 million cubic metres in 1998 (Figure 2.3). The value of sawlog exports closely tracked the trend in output quantity. Such exports rose from RM1262 million in 1982 to RM3143 million in 1991 before falling to RM1740 million in 1998. The drop in value of export has not been as fast as for the volume of exports. Sawn timber exports increased both in volume (from 0.18 million cubic metre to 1.55 million cubic metre) and value (from RM100 million to RM1219 million) from 1982 to 1995, and declined thereafter (Figure 2.4). The expansion was in line with the government's policy of encouraging processing to generate value added

and employment from timber resources.

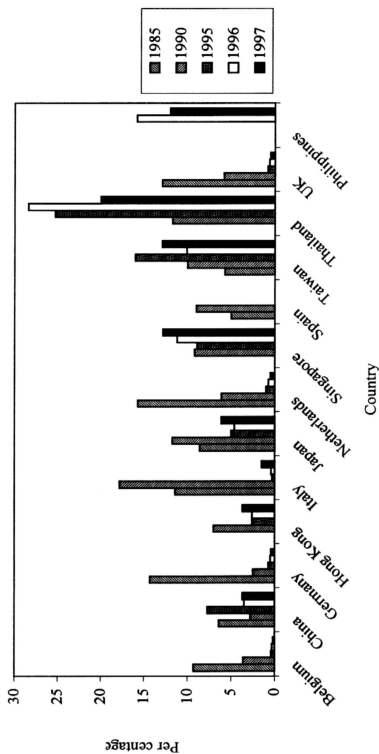
Japan is the largest buyer of sawlogs from Sarawak. Except for the early nineties and in the Asian crisis year of 1997, Japan has purchased about half of Sarawak's sawlogs since 1985 (Figure 2.5). Taiwan is the second most important buyer, buying about one fifth of Sarawak's sawlogs within the same period. Next comes the Republic of Korea, which has reduced its share from 16.0 per cent to 5.5 per cent over this period while Hong Kong's share more than doubled, from 3.6 per cent to 7.7 per cent. Exports to India, China and Thailand fluctuated throughout the period. Nonetheless, Thailand took an increasing portion of Sarawak's sawn timber in the nineties, rising from 11.7 per cent in 1990 to 20.0 per cent in 1997 (Figure 2.6). Singapore's portion increased from 9.2 per cent to 12.8 per cent, as did Taiwan's (from 5.7 per cent in 1985 to 12.9 per cent in 1997). The Philippines registered as a significant buyer in 1996 (15.8 per cent) and 1997 (12.0 per cent). Exports to China and Hong Kong declined during the period. Traditional markets in the European Union, such as the Netherlands, Germany, UK, Italy, Belgium and Spain, decreased their imports in the last decade.

Figure 2.5: Sarawak - Sawlog Exports by Destination, 1985-1997 (%)



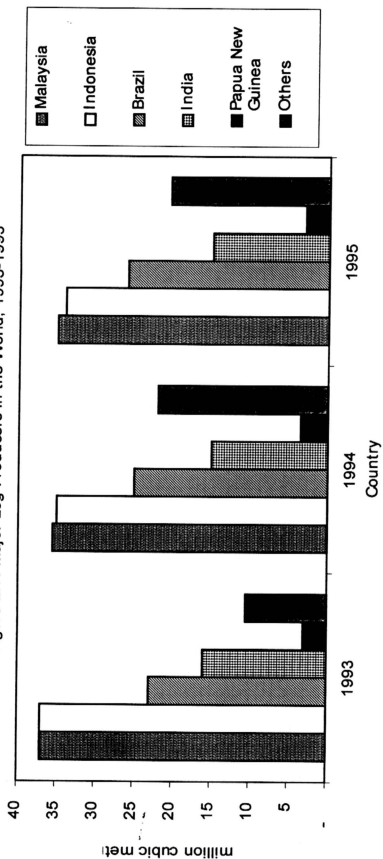
Sources: Department of Statistics, Malaysia, Yearbook of Statistics, Sarawak, various issues

Figure 2.6: Sarawak - Exports of Sawn Timber by Destination, 1985-1997 (%)



Sources: Department of Statistics, Malaysia,
Yearbook of Statistics, Sarawak, various issues

Figure 2.7: Major Log Producers in the World, 1993-1995



Source: The Independent, 27 September 1996, "PNG and World Trade in Tropical Logs"

The world trade in tropical logs centred around three major producing areas – Central Africa, Latin America and Asia-Pacific. The major producers and exporters of tropical logs are the ITTO producer member countries of Malaysia, Indonesia, Brazil, India and Papua New Guinea (Figure 2.7). Malaysia is the major log-producer, producing over 35 million cubic metres in the period 1993-95. Sarawak's log exports represented 20 per cent of Malaysia's log production in this period. Indonesia followed Malaysia closely. Brazil produced about one quarter million cubic metres, while India produced some 15 million cubic metres. Papua New Guinea produced 3 to 4 million cubic metres in the period under review. Production by ITTO producer countries in 1995 decreased by two per cent from 1993 mainly due to Malaysia's reduced production.

Decreasing log exports from Sarawak have prompted Japan, the dominant player in the global log market, to explore alternative sources. This includes Papua New Guinea (PNG), African producers such as Gabon and Cameroon, as well as the non-ITTO sources such as the Solomon Islands. Japan has also looked for substitutes in the form of softwood and temperate hardwoods. ("PNG and the World Trade in Tropical Logs" in *The Independent*, September 27, 1996, p. 9). PNG exports to the Republic of Korea and China, while the African producers export to China and Europe. In short, Sarawak's competitors appear to be PNG and the African countries. However, the greater threat to the world trade in tropical logs may well be the depletion of logs worldwide and of Sarawak in particular.

2.6 STATE GOVERNMENT FOREST REVENUE

Forest revenue has contributed the highest portion of the Sarawak State government's revenue. It increased from RM6 million in 1964 to RM11.5 million in 1970, RM133

million in 1980 and RM336 million in 1990. In 1996, its contribution was RM704 million. The share of state government forest revenue grew from 6 to 48 per cent during this period (*Yearbook of Statistics, Sarawak*, various issues). Forest revenue accounted for the Sarawak State government revenue being one of the highest amongst Malaysian states. Consolidated revenue for the 13 state governments represented a small proportion of Federal and State Government revenue – 20 per cent in 1985, 23 per cent in 1990 and an estimated 15 per cent in 1995 (*Economic Report*, various issues). Sarawak's state government revenue increased from 15 per cent of consolidated state government revenue in 1964 to 23 per cent in 1996. This has enabled the Sarawak State Government to make up for the limited federal government expenditure in the state. For example, the government sector in Sarawak is relatively smaller than the average for the nation. Except for 1990, government services, as a proportion of GDP in Sarawak has been less than the national average (Table 2.6). Yet, an increasing share of government expenditure in Sarawak originates from the State Government. The state government's share of government expenditure grew from 45 per cent in 1964-70 to 57 per cent for 1991-96 (Table 2.7).

Table 2.6: Government Services as a Proportion of GDP, 1970-1997

	1970	1990	1997
Sarawak	5.20%	11.20%	7.30%
Malaysia	7.80%	8.00%	9.10%

Sources: *Annual Bulletin of Statistics, Sarawak*, various issues

Table 2.7: Sarawak - Government Expenditure, 1964-1996

	1964-70	1971-80	1981-90	1991-96
State Government Expenditure	45%	40%	46%	57%
Federal Government Expenditure	55%	60%	54%	43%
Total	100%	100%	100%	100%

Sources: *Annual Bulletin of Statistics, Sarawak*, various issues

2.7 CONCLUSION

Sarawak has a large area of tropical rainforest with unique biodiversity. These forests play an important role in environmental stability and the regulation of water supply. Traditionally, they provided for food and other necessities of indigenous peoples. Combined with other inputs, they have good potentials for both domestic and foreign recreation as well as tourism.

Forestry contributes substantially to the state's GDP and provides raw material for its wood-based industries, for which the state enjoys comparative advantage compared to most states in Malaysia. Sarawak is one of the major world exporters of tropical logs. Log exports and the growth of timber-related downstream activities bring foreign exchange to the state and country. Forest revenue also led to the Sarawak Government getting high revenue relative to most State Governments in Malaysia. Sarawak's government expenditure from forest revenue makes up for the deficiency of

federal government expenditure in the state. However, Sarawak's forest resources are depleting. Sarawak's traditional buyers have been seeking alternative sources of timber from PNG and Africa, as well as substitutes for tropical timber. The management of the state's forest resources has been influenced by its forest policy as well as the design and implementation of its logging concession system.

The declared forest policy of the government aims to regulate the management of the forests within the macroeconomic perspective of Sarawak, integrating socio-economic well-being, environmental sustainability, indigenous rights and privileges, the need for food crops, income from minerals as well as the production and exports of timber. Different parties reap varying levels of benefits (and bear different costs) from each of these objectives.