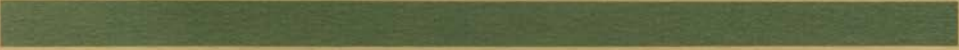




Irian Jaya



The transformation of a Melanesian Economy



Ross Garnaut and Chris Manning



In 1963 Indonesia took over the former Dutch colony of West New Guinea. In the decade since, this large resource-rich Melanesian area, now Irian Jaya, has undergone rapid change to become an integrated province of the comparatively resource-poor Republic of Indonesia.

Under the culturally alien Dutch administration change was slow and felt predominantly in the towns. Under the equally alien Indonesian administration the pace of change has accelerated and the effects have been more dramatic, even traumatic. Irian Jaya towns have now been substantially integrated into the Indonesian system – development programs have had marked effects on education, money, labour and commodity markets, transport and communications, and the utilisation of forest, mineral and fish resources. These effects have not always benefited the Irianese people and the gap between the modern economy and the villages still pursuing a Melanesian way of life is increasing.

The Irian Jaya experience, traced in this book, is of great importance to those concerned with the future of Papua New Guinea, of the Melanesian economies to its east, and of the Southeast Asian economies to its west. Little use has so far been made of this rich source of comparative data and the authors have here, for the first time, assembled in a concise and interesting form Irian Jaya's responses to its experience.

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IRIAN JAYA

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IRIAN JAYA

The transformation of a
Melanesian economy

Ross Garnaut and Chris Manning

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Preface

We have shared an interest in the economic problems of Indonesia and of Papua New Guinea for some time and have been impressed by the almost complete absence of analysis of recent developments in Irian Jaya. With the encouragement of Professor H. W. Arndt we began collecting material for an article in the *Bulletin of Indonesian Economic Studies* in mid-1972. After we had each spent a month in Irian Jaya the article had grown into two and we had gathered additional information that seemed to hold interest for a wider audience. This book is the end product of that growth.

The book is mainly about Irian Jaya. But we also look at economic change in the similar natural environment in Papua New Guinea. The first chapter looks at how Irian Jaya is part of a larger geographical unit in both physical and human terms. A later chapter looks at the economy that has emerged under colonial administration in Papua New Guinea, paying special attention to the different uses to which similar resources have been applied. The main part of the book deals with various aspects of Irian Jaya development. Several chapters take up historical themes, describing the Dutch colonial period, administrative changes associated with the transfer of sovereignty and the fundamental economic changes that have occurred through integration into Indonesia. Two chapters deal with the general questions of budget policy and transport and communications and three discuss in some detail recent economic changes in the towns, enclaves and villages. A final chapter assesses Indonesia's success in achieving its economic objectives in Irian Jaya and draws some policy implications from the study as a whole.

The collection of material on the Irian Jaya economy is difficult, and such success as we had was made possible by the strong support of many people. Professor Arndt, Professor Sukisno, Rektor of Cenderawasih University, and Brigadier General Jusuf Singedekane facilitated our visits to Irian Jaya. Brigadier General Acub Zainal assisted us in collection of official data. Drs Anwas Iskandar, Professor Malcolm Walker, Drs Sareko and the staff of the Lakbangda secretariat, Mr Berndt Bernander and other UNDP staff provided us with considerable assistance in Jayapura and Dr Makaliwe helped us with

Preface

some very useful material. We are grateful to these and many other persons who assisted in the collection of data. Howard Dick, Lance Castles and Anton Ploeg assisted with useful comments on the manuscript and Peter McCawley contributed a great deal with a detailed critique of an earlier draft.

At the time when the book was put together, one of the authors was employed by the New Guinea Research Unit of the Australian National University in Port Moresby and the other by the Economics Department of the Australian National University's Research School of Pacific Studies in Canberra. The study was made possible by the support of these two institutions.

Owing to the shortness of our visits to Irian Jaya, considerable use had to be made of secondary materials. Presentation of quantitative data about Indonesian economy and especially about Irian Jaya is hazardous. Wherever possible we have checked statistics against alternative series and against the judgment of persons close to the realities we are describing. Whenever sums are quoted in dollars, the United States dollar is meant unless otherwise stated.

We ourselves see the book as an introduction to the complex and unusual problems of Indonesia's largest province. We hope that it will help put Irian Jaya back on the map of social scientists, who have had difficulty obtaining reliable information in the past decade. It is by no means a definitive work, and we hope that it will stimulate others to undertake more detailed studies.

Ross Garnaut
New Guinea Research Unit,
Port Moresby, July 1973

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Jogjakarta, July 1973

Contents

Preface	v
Tables	viii
Abbreviations and Indonesian Terms	x
1 The Old New Guinea	1
2 Netherlands New Guinea	9
3 Integration into Indonesia: Administration and Education	20
4 Integration into Indonesia: Money, Labour and Commodity Markets	32
5 Public Finance and Resource Allocation	45
6 Transport, Communications and Trade	55
7 The Towns	64
8 The Enclaves	71
9 The Villages	82
10 Papua New Guinea	93
11 Conclusions and Some Policy Implications	105
Index	113
Endpaper Map: Irian Jaya	

Map drawn by the Cartographic Section, Department of Human Geography,
Australian National University

Tables

1. Population of Irian Jaya by kabupaten, 1961 and 1971	5
2. Expenditure, revenues and deficits of Netherlands New Guinea, 1950-61	14
3. Exports and imports, Irian Jaya, 1954-71	14
4. Exports from Irian Jaya, major commodities, selected years, 1951-71	15
5. Educational enrolments at various levels, selected years	26
6. Enrolments at secondary schools, by type of school, selected years	26
7. Allocation of development funds to education in Irian Jaya, 1969-73	28
8. Cenderawasih University enrolments, scholarships, graduates and teaching staff, 1970	30
9. Exchange rates, Irian Jaya and Indonesian rupiahs, and US dollar and Irian Jaya rupiah, 1963-72	33
10. Credit advances by categories, Export-Import Bank, Irian Jaya, 1969-71	35
11. Recorded movements between Irian Jaya and other provinces on Pelni inter-island vessels, 1966-72	39
12. Indonesian and Irian Jaya tariff levels, October 1972, selected commodities among major Irian Jaya imports	43
13. Irian Jaya budgets, 1971/72 and 1972/73	46
14. Routine expenditure (planned), 1969/70 to 1972/73	47
15. Planned Pelita and Fundwi development expenditures, 1969/70 to 1971/72	49
16. Fundwi development program, projects and budget allocations	52-3
17. Irian Jaya's trading partners: percentage shares in exports and imports, by value, 1961-71	60

18. Populations of five major towns, 1961 and 1971	64
19. Prices of selected commodities in Irian Jaya and other Indonesian towns, March-April 1972	68
20. Prices of selected commodities in Irian Jaya and other Indonesian towns, April-May 1972	69
21. Mining contracts signed in Irian Jaya to December 1972	73
22. Foreign investment in prawning in the Arafura Sea	79
23. Sources of Papua New Guinea government receipts, selected years	99

Abbreviations and Indonesian Terms

ADB	Asian Development Bank
AMA	Associated Mission Aviation (flying organisation run by the Catholic missions in Irian Jaya)
Bappenas	Badan Perencanaan Nasional (the national planning agency)
Bupati	Regent. Civilian head of the <i>kabupaten</i> administrative unit
DPR	Dewan Perwakilan Rakyat (the Peoples Consultative Assembly in Jakarta. The DPRD I is the Provincial Peoples Consultative Assembly and the DPRD II is the <i>Kabupaten</i> Peoples Consultative Assembly)
Fundwi	Fund for the Development of West Irian (contributed by the Dutch government and administered by the United Nations)
Golkar	Golongan Karya (the government-backed political party composed of 'functional groups')
ICA	International Coffee Agreement
Kabupaten	Second level administrative unit (Regency), directly below the provincial government
Kecamatan	Third level administrative unit (District), directly below the <i>kabupaten</i> government
Koteka	Penis sheath worn in the highlands
KPPD	Kursus Pelopor Pembangunan Desa (courses for agents of village development, offered to primary school graduates in the highlands)
KPS	Kepala Pemerintah Setempat (refers both to the head of the third administrative level in Irian Jaya and to the administrative unit itself)
Lakbangda	Pelaksana Pembangunan Daerah (Executive Agency for Provincial Development)

Abbreviations and Indonesian terms

MAF	Mission Aviation Fellowship (flying organisation run by the Protestant missions in Irian Jaya)
Muspida	Musyawarah Pimpinan Daerah (council of regional leaders, containing a high proportion of high-ranking military and police personnel)
NNGLM	Nederlands Nieuw Guinee Luchtvaart Maatschappij (Dutch airlines company operating in Irian Jaya prior to 1962)
NNGPM	Nederlandsch Nieuw Guinee Petroleum Maatschappij (the only large oil exploration and production company during Dutch times)
Operasi Koteka	The special operation for highlands development – one of major aims is the removal of the koteka (penis gourd) and the clothing of the people
(Re) Pelita	(Rencana) Pembangunan Lima Tahun (the five-year development plan)
Perumtel	Perusahaan Umum Telekomunikasi (National Telecommunications Authority)
PLN	Perusahaan Listrik Negara (National Electricity Authority)
PN	Prefix to name of state corporations
PT	Prefix to name of private corporations
Putera daerah	Indigene to a particular region of Indonesia (literally 'son of the region')
RAPBN	The national budget
Sektor Khusus Irian Jaya	Special section within the Department of Internal Affairs concerned with Irian Jaya
Task Forces	Special program for highlands development
Transmigration	Official term for government sponsored resettlement from Java to the outer islands
UNDP	United Nations Development Programme
WIFI	West Irian Forest Industries Development Corporation, planned by Fundwi to assist in development of forest industries

I The Old New Guinea

The 141st meridian cuts the large island of New Guinea into roughly equal halves. But the recently settled boundary between Papua New Guinea and Irian Jaya follows neither the island's geography nor traditional cultural patterns of its population. Geographical strata are vertical rather than longitudinal and the physical environment moulds patterns of human life: there are similarities in the swamps and swamp cultures on the two sides of the border, and also in the hill slopes and the high mountain valleys. Very different external influences have acted on the two sides of the border in recent years, but the dominant physical environment and prior cultural conditions exert a powerful influence on the pace and nature of change.

Irian Jaya, covering New Guinea west of the 141st meridian and many small, adjacent islands, is by far the largest province of Indonesia. Its 420 thousand square kilometres represent 22 per cent of the Republic's total land area. Papua New Guinea, in its last year of Australian administration and rapidly approaching Independence, is slightly larger, 460 thousand square kilometres. The offshore islands are larger in Papua New Guinea, with New Britain, New Ireland and Bougainville together covering 60 thousand square kilometres.

New Guinea lies between the continental land mass of Australia and the populous land mass and islands of Asia. In many respects it is quite different from both. Australia, New Guinea and the Pacific Islands were never linked by land bridges to the Asian continent even at lowest sea-levels of the Ice Age.¹ The native animals of Australia and New Guinea are marsupials, while Asia is a realm of placental animals. The Indonesian islands between Bali and New Guinea form a frontier zone between the two groups. The division between Asian and New Guinea flora is very much less clearly marked, and New Guinea contains a wide range of flora from each of the neighbouring continents.

¹ J. Golson, 'The Remarkable History of Indo-Pacific Man: missing chapters from every world prehistory', *Search*, 3 (1-2), Jan.-Feb. 1972, p. 14.

The Melanesian people who inhabit New Guinea, the string of islands stretching southeast into the Pacific as far as Fiji and the mountainous inland of some other islands in eastern Indonesia exhibit many physiological and cultural differences. However, the Melanesians are clearly distinguishable as a group from the Australians to the south, the Polynesians to the east and the Malays to the west.

Few parts of the earth's surface constrain man's movements as effectively as the swamps, jungles and mountains of New Guinea. One of the world's great cordilleras runs from the western extremity through the island's entire length to the Owen Stanley Ranges in eastern Papua (see Map). In Irian Jaya, the central mountain chain is commonly over 4000 metres and reaches over 5000 metres. The ranges fall to a few thousand metres west of Lake Paniai before rising again in the Bird's Head in the west. Extensive glaciers cover the highest peaks in the province. In Papua New Guinea, the slightly lower mountains (Mt Wilhelm rises to 4300 metres) do not reach the snowline.

The cordillera is a complex system of ranges and the broad upland valleys, varying in width from 200 kilometres to fewer than 10 kilometres in the neck of the Bird's Head. At its northern and southern margins, the cordillera falls away sharply to plains and lowlands. It is also mountainous within the cordillera, but some flat and gently sloping areas occur, especially in the river valleys of the eastern half. The Baliem Valley, draining south, is the most important of the flat-bottomed valleys piercing the higher, more rugged mountains of the west.

South of the cordillera, the mountains slope steeply into very extensive bogs, sago swamps, low-lying alluvial plains in a large area straddling the border, and parallel, low ranges in the vicinity of Port Moresby. To the north, a series of mountain chains run parallel to the coast, separated by valleys and tablelands. A giant fault-trough extends from Cenderawasih Bay in Irian Jaya to the Huon Gulf in Papua New Guinea. Four great rivers (the Mamberamo, the Sepik, the Ramu and the Markham) run part of their courses on the floor of the trough, which varies from a few to 80 kilometres in width. Along much of the north coast, alluvial plains and swamps merging into low beach ridges, mangrove swamps and coastal platforms make up a narrow coastal plain.

Lowland New Guinea is hot and humid, with slight seasonal variation in temperature. Biak and Port Moresby both have a mean annual maximum of 30.2°C. Mean temperature falls by about 1° for every 100 metres of altitude, until ground frosts occur at about 2600 metres. Between the hot lowlands

and the frost and snow areas, about 1200-2400 metres, moderate temperatures and low midday humidity produce an invigorating climate.²

Most of the island experiences unusually heavy rainfall, although there is considerable variation. Most parts receive over 2500 millimetres per annum. The southern flank of the central mountains and the southern side of New Britain receive over 6000 millimetres, while an area in the vicinity of Port Moresby receives less than 1000 per year. The heaviest falls occur between December and March, with the seasonality being especially pronounced around Port Moresby and the Fly-Digul border region. A second peak in August can be observed in the southern valleys of the cordillera, Manus Island and the islands of Cenderawasih Bay.

A varied geological history has produced a complex soil pattern. In most areas, a combination of steep slope and heavy rainfall has limited formation of topsoil. Leaching has reduced fertility over wide areas. Poor soils predominate except in areas of recent volcanic activity (the Gazelle Peninsula, parts of Bougainville and parts of Papua's Northern District) and of alluvial soils in a few coastal areas (the Markham Valley and levees of the Fly, Digul, Sepik and other large rivers). Most of these richer agricultural areas are found in the east.

Almost the whole land area is covered by dense forest or swamp. Extensive savannah woodland exists only between the Fly and Digul Rivers. Small areas of savannah are present in the northern coastal plain of Irian Jaya and in the vicinity of Port Moresby. There are man-made grasslands in heavily populated valleys of the central highlands. Extensive areas of mangroves are found on sheltered, muddy shores and tidal estuaries. In many areas, this backs on to stands of nipa and large areas of sago palms. Sago palms are most extensive in the middle of the south coast of both Irian Jaya and Papua. There are also extensive sago swamps behind the levees of the Mamberamo and Sepik Rivers and smaller stands in a few other inland locations. Above the swamps to an altitude of about 3000 metres, dense forest prevails.

Colonised by Melanesian man, New Guinea with its swamps and difficult terrain was a formidable barrier to the eastward expansion of the Malay civilisation of Southeast Asia. Even inquisitive, assertive European man was long held at bay by New Guineans and their environment. Many New Guinean communities maintained traditional patterns of economic life well into the twentieth century.

Human settlement of the New Guinea highlands dates back over 25,000

² H. C. Brookfield with D. Hart, *Melanesia*, London, Methuen, 1971, p. 18.

years, and horticulture 5000 years.³ The advent of horticulture was probably associated with the arrival of new colonists from the Indonesian archipelago, but it was enriched by addition of native plants like sugar cane and bananas. Taro and yams were the early agricultural staples, but in most highland areas they have been replaced by the sweet potato, which is more productive at high altitudes.⁴

The history of human settlement in lowland and coastal New Guinea is difficult to unravel, because these areas were more accessible to external influence. The cordillera contains numerous highly differentiated Papuan languages, most belonging to a single stock. But Austronesian languages (a group which includes almost all Indonesian, Malaysian, Philippines, Malagasy, Pacific Islands and aboriginal Taiwanese languages) interrupt the distribution of Papuan languages across the north coast and completely replace them at the eastern end of the island. Social organisation in some coastal regions of Irian Jaya was influenced by contact in recent centuries with Malay seafarers.

Nevertheless, traditional patterns of economic life were substantially intact at the beginning of the colonial era. The island's population lived and worked in thousands of small villages, each having slight economic contact with other villages and none with the outside world.

The size and location of the New Guinea population have changed considerably this century under the influence of new diseases, modern health practices and underlying economic change. However, reliable population data are not available for the early years of western contact and the present distribution must be used as a starting point for discussion of traditional patterns.

One of the most striking features of population distribution in New Guinea is its irregularity. The most dense population (over 200 persons per square kilometre, and occasionally exceeding 1000) occurs in very small areas in middle to high altitude valleys of the central cordillera, on the volcanic islands (Buka, south Bougainville, the Gazelle Peninsula, Biak and Serui), on some foothill regions (the Huon Peninsula) and on part of the flood plain of the Sepik. The sago swamps commonly carry moderately heavy populations (the Gulf of Papua, Asmat, part of the Mamberamo and the remainder of the Sepik). There are very large areas with little or no population: between the

³ Golson, 'Remarkable History', pp. 17-18.

⁴ The sweet potato seems to have reached New Guinea from the eastern Indonesian islands where it was introduced by the Portuguese during the sixteenth century, *ibid.*

Digul and the Fiy as far north as the central highlands; in Papua between the highlands and the coastal strip; in Irian Jaya between the cordillera and the northern coastal strip.

The population of Papua New Guinea is about three times that of Irian Jaya: 2,450,000 compared with 837,000 in 1971.⁵ Data on the inland populations of the west are estimates of uncertain reliability. Between about 35 and 40 per cent of the populations of both Papua New Guinea and Irian Jaya are in the central highlands. Offshore islands are densely settled in both territories but the bigger islands off Papua New Guinea carry larger populations.⁶

Although the highlands data are rough estimates, Table 1 conveys a general picture of the population distribution of Irian Jaya.

Table 1 Population of Irian Jaya by *kabupaten*, 1961 and 1971 (000 persons)

	Population		Persons per square kilometre 1971
	1961	1971	
Jayawijaya	193	167	3.0
Paniai	110	141	3.5
Teluk Cenderawasih	44	57	14.2
Yapen Waropen	38	43	2.3
Fak-Fak	33	45	1.6
Jayapura	64	95	2.0
Manokwari	54	56	1.1
Merauke	140	140	1.1
Sorong	70	93	2.3
Total	746	837	

Note: There were some changes in *kabupaten* boundaries over the period, so that the disaggregated figures are not strictly comparable.

Sources: Report on Netherlands New Guinea 1961 and Kantor Sensus dan Statistik, Propinsi Irian Barat, Sensus Penduduk 1971.

The 1961 population distribution and changes to 1971 were affected considerably by the growth of the towns, promoted by post-war Dutch and then Indonesian expenditures. The rapid growth of towns with very slender links with the more populous village sectors is discussed in chapters 2 and 7. Contact with Dutch administration had contradictory effects on population.

⁵ Kantor Sensus dan Statistik, Propinsi Irian Barat, Sensus Penduduk 1971.

⁶ In 1971 the island districts of New Britain, New Ireland and Bougainville of New Guinea were estimated to have a total population of approximately 322,000 with a density of 5 per square kilometre. The small islands of Biak and Serui in Irian Jaya's Cenderawasih Bay had a smaller total population of 88,000 with a slightly higher overall density of 12 per square kilometre.

Introduction of exotic diseases raised death rates in some areas, especially amongst the Marind people of the southeast.⁷ Later, the breakdown of traditional institutions such as post-natal sex taboos raised fertility. The cessation of warfare and, near major administrative and missionary centres, the improved medical services lowered mortality. In the last years of Dutch administration, rates of natural increase up to 4 per cent per annum were encountered in areas of most intense contact.⁸ Rates from 1.5 per cent to 2.5 per cent were more common in other administered areas, with much lower rates outside administration. We do not have satisfactory demographic data for recent years, but rates of natural increase may be as low as 0.5 per cent in coastal areas outside the main towns and close to zero along the south coast in some inland areas.⁹ In the towns, natural increase is swamped by immigration.

The indigenous populations have utilised a considerable variety of economic systems in adaptation to the highly differentiated physical environment. The gathering and processing of sago provides the staple for about one quarter of the population in Irian Jaya and one tenth in Papua New Guinea. Sago is important to all villages adjacent to the swamps on the southern side of the cordillera from the Bird's Head to near Port Moresby. It is the staple for northern Irian Jaya east of the Bird's Head and for vast inland regions adjacent to the Sepik and Mamberamo Rivers. Sweet potato is the staple of about half the population of both territories, including most villages of the central cordillera. Yams and taro provide the bulk food supplies on the slopes of the central mountains, on the major islands of Papua New Guinea and in coastal Papua New Guinea west of the Sepik in the north and west of the swamps in the south.

All villagers have supplemented the staple with some wild food and cultivation of minor crops. A range of ingenious techniques allows agriculture to supplement wild sago in some swamp villages. Away from the coast and swamps extensive agriculture is practised, depending on long periods of natural regeneration between periods of cultivation. Land is not scarce in these areas and the traditional agricultural technology does not limit its use. Relatively labour-intensive agriculture is the main source of food only in

⁷ Norma McArthur, *The Populations of the Pacific Islands*, Canberra, ANU, Department of Demography, 1956, pp. 566-86.

⁸ K. Groenewegen, 'Demographic Data for Selected Areas of Western New Guinea, 1960-1962', *Pacific Viewpoint*, 8(1), 1967, pp. 87-91.

⁹ Discussions with Health Department officials in Merauke and Jayapura and WHO officials in Jayapura provided some insights into mortality rates.

the valleys of the central highlands. There, segregation of crops and garden types is almost complete. Villagers of the Baliem Valley have brought large areas of swamp under cultivation by systems of regional drainage. A similar system was used in the Western Highlands of Papua New Guinea until last century, when the Wahgi people abandoned the valley floor.¹⁰

Food has not been scarce, although it is rarely available in a nutritionally ideal variety.¹¹ Abundant local materials have been adapted for house construction and fences. Commodities not available in all areas where there was demand for them, including salt, stone for axes, ornamental shells, plumes and ochres were diffused through extensive traditional trading networks,¹² but recent changes have lessened the importance of this type of inter-village trade.

Traditional agricultural implements were very simple, commonly comprising only wooden digging sticks and stone or shell axes or adzes. On parts of the south coast a hoe was made by fitting a shell blade into a wood-shaft, and the people of the Wahgi used wooden hoes for clearing weeds and breaking clods. Weaponry, ornaments, housing, containers and utensils were produced to many specifications from a wide range of materials. The art of manufacture was often highly developed, especially in the larger villages of the sago cultures in Asmat, the Gulf of Papua and the Sepik.

Simple technology in production and transport contributed to the extremely dispersed pattern of human settlement.¹³ Over most of the island, human settlements ranged in size from a few families to a few hundred persons. There were larger village populations in some coastal and river areas, ranging to over one thousand persons. The considerable human effort in foot transport discouraged the location of gardens away from the houses, and there were few traditional activities in which economies of scale were important to exert countervailing pressure towards development of larger communities. In the swamps, the sago palm provided dense concentrations of food supply and the canoe offered easy transport over longer distances: it is no accident that the sago economies developed more elaborate forms of social organisation and art, which then provided a reinforcing rationale for larger settlements.

¹⁰ Ian Hughes, personal communication, February 1973.

¹¹ See L. A. Malcolm, *Growth and Development in New Guinea*, Institute of Human Biology, Monograph Series No. 1, Madang, 1970. See also chapter 6 below.

¹² Ian Hughes, *Recent Neolithic Trade in New Guinea*, Ph.D. thesis, Australian National University, Canberra, 1971.

¹³ Brookfield and Hart, *Melanesia*, pp. 221-8; K. Groenewegen and D. J. van de Kaa, *Resultaten van het demografisch onderzoek Westelijk Nieuw-Guinea*, EEC Project, The Hague, 1964, Part I, pp. 97-105.

Irian Jaya

There are economies of scale in many modern economic activities and in commercial trade, and the dispersal of population has contributed to the extremely high cost of colonial administration and to the slow growth of trade with the external world.

2 Netherlands New Guinea

Early administration and the war

A few coastal areas of Irian Jaya had a long history of contact with slave traders and other seafarers from the Malay Archipelago before European contact.¹ In the Radja Ampat group, the Vogelkop and parts of Cenderawasih Bay this led to limited use of metal implements. More fundamental and widespread change has been caused by twentieth century interaction with the complex, literate societies of Europe and Asia.

Colonial history began earlier in the west than in Papua New Guinea although colonial contact was very much more intense in the east.² Bone has described Netherlands New Guinea as 'the stepchild of the Indies, a neglected backwater useful only as a barrier against foreign intrusion, a place for tours of punishment duty by delinquent civil servants and . . . of exile for nationalist leaders'.³ Worried by the possibility that others might use New Guinea as a base from which to challenge them for the spice islands trade, the Dutch East India Company in 1660 recognised the sovereignty of the Sultan of Tidore over 'the Papuan islands in general'.⁴ This excluded other European powers while avoiding the expense of direct company administration of an area with little apparent commercial promise. In 1828 the government of Netherlands India formally took possession of the north coast west of the 141st meridian and a proclamation in July 1848 laid claim to the whole of what is now Irian Jaya in the name of the Sultan of Tidore.⁵ Tidore's fictional rule formed

¹ For a description of early contacts between coastal Irianese and Malay seafarers, see C. D. Rowley, *The New Guinea Villager*, Melbourne, Cheshire, 1965, chapter 3. For a history of contact between Irian and the Sriwijaya and Majapahit empires and later the Sultanate of Tidore, see Harsja W. Bachtiar, 'Sedjarah Irian Barat' in Koentjaraningrat and Harsja W. Bachtiar (eds.) *Penduduk Irian Barat*, Jakarta, P. T. Penerbitan, Universitas, 1963.

² We will return to a discussion of economic change in Papua New Guinea in chapter 10.

³ R. C. Bone, *The Dynamics of the Western New Guinea (Irian Barat) Problem*, Modern Indonesia Project, Southeast Asia Program, Ithaca, Cornell University, 1958, p. 22.

⁴ *Ibid.*, p. 11.

⁵ *Ibid.*, p. 16.

the basis for the 1885 boundary agreement with Great Britain and the 1910 agreement with Germany.

Colonial exploration and administration spread slowly. The first official expenditure on administration in Netherlands New Guinea was made in 1898, after the government of British Papua had requested control of eastward raids by Marind headhunters. Administrative posts were established at Manokwari and Fak-Fak in 1898 and at Merauke in 1902. By 1937 a slender 'control' was exercised over about 200,000 persons. Dutch officials manned fifteen patrol posts and lower ranking Indonesian officials were in charge of about fifty smaller stations.⁶ Administration was confined to coastal areas although the Kapauku people around Lake Paniai had been contacted in 1937-8 and the dense population of the Baliem was sighted from the air soon after.

Mission administration was more intense than that of the government. Protestant missionary activity began in 1855⁷ and over 50,000 converts were claimed by 1935. Catholic mission activity was largely confined to the south, and converts were estimated at 7100 in 1933.⁸ Most of the very elementary education available was provided by the missions. Mission teachers and officials were generally from other parts of eastern Indonesia and instruction was in Malay.

There was very little modern commercial activity before the Pacific War. Coconut plantations covered a few thousand acres and Japanese companies employed 1100 workers in copal production.⁹ There was some intensification of the trade in traditional craft with eastern Indonesia. Chinese entrepreneurs traded tobacco, textiles and steel goods for bêche-de-mer, massoi, copal, copra and birds of paradise plumes, all on a very small scale. Trade stores provided services at the main patrol posts.

Nederlandsch Nieuw Guinee Petroleum Maatschappij employed several thousand persons, including about one thousand Irianese, at the peak of its exploration activities in the 1930s.¹⁰ Oil was discovered near Sorong and Bintuni Bay in 1936 and 1939, but commercial production did not begin until after the war.

⁶ Paul W. van der Veur, 'Dutch New Guinea', *Encyclopaedia of Papua and New Guinea*, Melbourne, Melbourne University Press, 1972, p. 277.

⁷ *Ibid.*, p. 281.

⁸ *Ibid.*, pp. 281-2.

⁹ Bachtar, 'Sedjarah Irian Barat', p. 72.

¹⁰ *Ibid.*, pp. 68-9 and van der Veur, 'Dutch New Guinea', p. 281. The NNGPM was a joint venture in which the principal partners were Royal Dutch Shell and Standard Oil.

Through the 1930s, several hundred European colonists arrived to begin farming, mostly near Hollandia and Manokwari, but had little success. Larger movements of people from Java were associated with New Guinea's role as a gaol for nationalist activists. After the rebellion on Java in 1926-7, over 800 prisoners guarded by 100 soldiers were shipped to Tanah Merah, 500 kilometres up the Digul River.¹¹ In the following decade, incarceration in New Guinea became a badge of nationalist commitment, worn by such notable figures as Sjahrir and Hatta.¹² Many of these political prisoners were permitted to take their families to New Guinea and some remained to form a small Javanese community of rice-growers and traders in the vicinity of Merauke.

By 1942 the colonial influence was confined to certain coastal areas where the Christian religions and the new law had largely eliminated warfare, art and traditional religious ceremonies.¹³ These influences released male labour time and this exacerbated the underemployment caused in some areas by the substitution of steel tools for stone and by introduction of other labour-saving tools, including matches. The new religion could fill only part of the void.

For many villagers, the underemployment and monotony of the pre-war years was broken dramatically when the Pacific War came to New Guinea in 1942. Establishment and supply of bases created considerable demand for labour. Hollandia, with an excellent natural harbour, was used as a Japanese base and grew to many times its pre-war size. With the arrival of 140,000 American and Australian troops in the allied counter-offensive in 1944 it was transformed further into a city of a quarter of a million persons.¹⁴ With the troops came over one thousand boats, nearly one thousand planes and countless tons of supplies and equipment. Local villagers performed odd jobs and were given trade goods. All effective males in surrounding areas were liable to labour service and one third were in service at any one time.¹⁵ Villagers became rich in commodities barely known in earlier years and aspirations rose to new levels.

Two hundred and forty kilometres of roads and bridges were built in

¹¹ Bachtiar, 'Sedjarah Irian Barat', pp. 65-6.

¹² Ibid., p. 67.

¹³ Not all coastal areas were covered by government administration. For example the long southern coastline between Kaimana and Digul was not under administration control by 1942.

¹⁴ D. Dexter, *Australia in the War of 1939-45: the New Guinea Offensives*, Canberra, Australian War Memorial, 1961, pp. 801 ff.; Bachtiar, 'Sedjarah Irian Barat'.

¹⁵ W. J. H. Kouwenhoven, *Nimboran: a Study of Social Change and Social-economic Development in a New Guinea Society*, The Hague, Voorhoevr, 1955, pp. 50-2.

establishment of the American base, together with barracks, hospitals, theatres and stores. A major airstrip was laid at Sentani and connected to the port at Hollandia by pipeline for supply of petroleum products. The war forced the construction of an infrastructure that allowed Hollandia to function in post-war years as the capital of a much more intensively administered Netherlands New Guinea.

The impact of war on surrounding villagers and on infrastructure at Hollandia was repeated on a smaller scale at Biak, where a very large airstrip was built, at Merauke and in several other centres. Social organisation was placed under strain. New desires for economic change developed and these often led to frustration. Near Biak, a pre-war millennial movement developed into an independence movement in reaction to the Japanese presence. A flag was designed and several thousand persons were in active support. The movement was stamped out in 1943 after many were jailed and the leaders sentenced to death.¹⁶

More intensive colonial rule, 1949-62

After the war, West New Guinea was separated from the Moluccas residency to which it had formerly been attached and became a separate residency of the Netherlands East Indies. The status of the province was disputed at the 1949 Round Table Conference which transferred sovereignty of the former Netherlands East Indies to Indonesia. The Dutch government's attempt to retain Irian Jaya was strongly supported at home.¹⁷ It was staunchly contested by Indonesia on the basis of New Guinea's association with the Netherlands East Indies. Bilateral negotiations broke down in the early 1950s, and repeated Indonesian attempts to gain support through the United Nations General Assembly failed to yield a solution.¹⁸ The United Nations rejection of Indonesia's appeal in late 1957 had traumatic internal political effects. It precipitated the strikes which led to nationalisation of Dutch firms in Indonesia in early 1958. Direct action was delayed because of internal instability, but

¹⁶ Koentjaraningrat, 'Reaksi Penduduk terhadap Perobahan Zaman', in Koentjaraningrat and Bachtar, *Penduduk Irian Barat*, p. 367.

¹⁷ Strong pressure from the internal pressure groups (especially Eurasians and mission groups), more general nationalist feelings roused by loss of much of her former colonial empire and a desire to complete a moral mission in New Guinea all contributed to Holland's firm stand on the issue. See A. Lijphart, *The Trauma of Decolonisation - the Dutch and West Nieuw Guinea*, New Haven, Yale University Press, 1966, especially chapters 6, 7 and 8.

¹⁸ Bone, *Western New Guinea*, chapters 4 and 5.

the easing of these problems enabled Indonesia to launch a limited military offensive against the Dutch in late 1961. In August 1962 after sporadic fighting both parties accepted the Bunker proposals for the United Nations to administer the transfer of sovereignty to Indonesia by May 1963.¹⁹ Indonesia agreed to carry out an Act of Self Determination to decide Irian Jaya's future by May 1969.

The character of administration after 1949 was very different from that of pre-war years. The colonial administrative superstructure, including the missions, had been manned by European Dutch only at the highest levels and by Malay-speaking Asians at middle and lower levels. There were only about 200 Europeans in the region in the 1930s. A massive influx of Eurasian and European Dutch and exodus of Indonesians occurred in late 1949. Within a year the European population grew from fewer than 1000 to more than 8500.²⁰ About a quarter of the new arrivals began farming or market gardening but most soon found their ways into the greatly expanded government service. Administration became overwhelmingly European for the first time.

The 1949-62 period marked a reorientation of trade. Prior to 1949, Irian Jaya had been integrated increasingly into the Netherlands East Indies economy, with rice and other commodities imported and all exports trans-shipped through Ujung Pandang. After the war, the Indonesian trading connections were cut and direct international shipping links opened.

Direct grants from the Netherlands allowed a vast expansion of government services in the period to 1961 (Table 2). Even these figures underestimate the importance of the metropolitan subsidy since nearly half of all revenues represented internal administrative transactions. In addition to these subsidies, there was an unknown but substantial amount of other direct spending by Dutch government departments, including the military. The colony incurred massive deficits on the current account of the balance of payments in order to service these transfers (Table 3).

Exports were dominated through the 1950s by crude petroleum from fields discovered near Sorong just before the Pacific War (Table 4). The oil field was not large, and production declined rapidly from a peak in 1954. All exploratory work ceased in 1960. Employment in the industry fell from 5129 (including 441 Europeans) in 1953 to 191 (10 Europeans) in 1961. Most

¹⁹ A gradual decline in Dutch political support for retention of New Guinea after 1956 and a lack of powerful international support for either side enabled Indonesia ultimately to achieve its objectives. Lijphart (*Trauma of Decolonisation*, chapters 10 and 11) traces the decline in Dutch internal support for retention of Irian Jaya.

²⁰ *Ibid.*, p. 55.

Table 2 Expenditure, revenues and deficits of Netherlands New Guinea, 1950-61 (\$ million)

Year	Expenditure	Revenue	Deficit
1950	10.1	5.8	4.4
1951	13.2	8.7	4.5
1952	16.4	11.2	5.2
1953	21.8	14.9	6.9
1954	26.3	14.4	11.9
1955	40.9	21.9	19.0
1956	36.4	16.2	20.3
1957	35.3	16.0	19.2
1958	34.0	15.9	18.1
1959	33.6	15.7	17.9
1960	40.2	16.7	23.7
1961	43.7	18.1	25.6

Source: The budget accounts for 1950 through 1959, and the budgets for 1960 and 1961, compiled by Lijphart, *Trauma of Decolonisation*, p. 41.

Table 3 Exports and imports, Irian Jaya, 1954-71 (\$ million)

Year	Exports	Imports ^a
1954	8.7	21.3
1958	7.9	24.1
1961	5.0	25.0
1963	3.1	14.9
1965	2.7	21.2
1967	2.1	7.9
1969	2.7	15.7
1971	2.8	30.2

^a The import figures for later years and particularly those for 1971 may be underestimates. They do not include rice imports by Bulog because this agency does not distinguish between domestic and foreign supplies. Also not included are imports associated with United Nations projects or imports on behalf of the military. The 1971 import figure includes imports by Freeport Indonesia arriving by ship but excludes any arriving by air.

Source: *Report on Netherlands New Guinea*, various years; Departemen Perdagangan, *Neratja Perdagangan Luar Negeri Propinsi Irian Barat*, Jayapura, 1972.

other exports were products from hunting, gathering or traditional activities within the village economy. Coastal areas were responsible for all village exports. Fak-Fak was the largest export area, supplying most of the nutmeg and mace, followed by Merauke (crocodile skins and copra) and Radja Ampat/Vogelkop (copra and copal). Timber, mainly lumber from a new mechanical sawmill at Manokwari, was an important export from 1959.

Table 4 Exports from Irian Jaya, major commodities, selected years 1951-71

Commodity	A. By volume (tons)				
	1951-2 ^a	1960-1 ^a	1966	1969	1971
Village Exports					
Copra	3385	5428	4374	2112	1834
Nutmeg	184	392	424	517	357
Mace	43	111	99	151	100
Crocodile Skins	47	n.a.	52	49	n.a.
Copal	327	564	36	27	26
Other					
Logs/lumber	61 ^c	13,000 ^c	2400 ^c	20,700 ^c	5433 ^c
Prawns	—	—	—	—	642
Oil	259	208	70	79	71

Commodity	B. By value (\$ thousand)					
	1951-2 ^a	1957	1960-1 ^a	1966 ^b	1969 ^b	1971
Village Exports						
Copra	516	614	747	195	232	317
Nutmeg	45	579	521	159	196	125
Mace	26	197	180	75	115	80
Crocodile Skins	116	499	527	129	317	392
Copal	85	226	221	5	5	6
Other						
Logs/lumber	2	1	286	13	359	58
Prawns	—	—	—	—	—	704
Oil	2460	5833	2780	n.a.	1129	1184

^a Two-year average.^b Converted from Irian Barat rupiahs at official exchange rates.^c Cubic metres.

Sources: Report on Netherlands New Guinea, various years; Lijphart, *Trauma of Decolonisation*, p. 44; Records of Departemen Perdagangan, Jayapura; Biro Sensus dan Statistik, Irian Barat Dalam Angka Tahun 1970. For 1971 there are inconsistencies in Departemen Perdagangan's data on export values.

The Netherlands and Singapore were the major markets for the exports of the coastal villages. There were direct shipping connections from Hollandia, Sorong, Biak and Merauke to overseas ports. Subsidised, regular government and private services connected about fifty minor ports to the export points. But the trade was static: village exports were no higher in 1961 than in the mid-1950s. Provision of shipping and commercial services permitted immediate increases in the cash incomes of coastal communities, but new technology, social organisation and crops were required for continued growth of incomes. There were attempts to introduce new crops and new

technology in the twilight of Dutch administration. However, there had been almost no increase in smallholder incomes by the time of the transfer of sovereignty.

The post-war Dutch expenditure had its main effects in the towns. About two-thirds of the indigenous wage labour force of 18,986 in 1961 was employed in the five major urban centres. Fifty-four thousand, or 7 per cent of the total population, including 28,000 indigenes, lived in Hollandia (Jayapura), Manokwari, Biak, Merauke and Sorong. The immigrant population of 15,500 Europeans and 16,600 Asians was heavily concentrated in these towns.

Ten thousand five hundred Irianese, or over half of the indigenous wage labour force, were in government service.²¹ A high proportion of the remainder was engaged in building, which was heavily dependent on government contracts. Most of the native work force had no special skills: 30 per cent had no formal education and only one-sixth of those in government service were classified as 'officials and junior officers'. Very few Irianese occupied 'medium level' administrative positions. The Irianese workforce was mobile and impermanent: in 1961, only 2669 urban workers were married and living with their families.²²

Education was a large element in the budgets of the Dutch administration and increased markedly in the last few years of the period to reach 11 per cent of total expenditure in 1961.²³ However education was poorly geared to the manpower needs of the monetary economy. The spread of Dutch and Christian values was the prime aim of the education system. In late 1960, a new education plan gave greater weight to the transfer of scarce skills, but 'education for the spiritual and social development of the people' retained its primacy.²⁴ Despite the predominance of Malay as the lingua franca of the trading and urban people, Dutch language and not Malay was being introduced in the newly opened schools in the highlands in the early 1960s.

Through the 1950s, primary education continued to be managed almost exclusively by the Christian missions. In 1961 there were 496 unsubsidised mission schools with about 20,000 pupils. The teachers were Irianese with little education themselves and with no teacher-training qualifications. The content of teaching was almost entirely religious. The missions ran almost all

²¹ Report on Netherlands New Guinea 1961.

²² J. C. M. Bakker, *Strategie van het Economische Ontwikkelingswerk in het Voormalige Nederlands Nieuw-Guinee*, Tilburg, Drukkerij MSC, 1965, p. 164. Report on Netherlands New Guinea 1959, p. 61 and 1961, p. 69.

²³ *Ibid.*, p. 93.

²⁴ *Ibid.*, p. 88.

of the 776 subsidised primary schools, where 45,000 pupils received schooling with less exclusively religious content in 1961.²⁵

About one thousand pupils, including 400 Irianese, attended advanced primary or intermediate secondary schools in 1961. The single secondary school had 157 students, including twenty-two Irianese in the lowest three classes. A number of vocational and technical schools had a total of 975 students, most of whom were receiving teacher training. There were no tertiary education institutions. In 1961, ninety-five Irianese were studying abroad, including three at a Dutch university, four at the Netherlands National Institute for Tropical Agriculture and seven at the Papuan Medical College in Port Moresby.²⁶

Small though these numbers were in relation to the modest manpower needs of the monetary sector of the Netherlands New Guinea economy, the 1961 figures represented a vast expansion on 1960 and earlier years. Almost none of the expanded effort had produced additional secondary and tertiary graduates at the time of the transfer of sovereignty.

For Irianese who did enter the money economy wages were very high in comparison with major Indonesian centres. Under the 1957 pay regulations an ordinary seaman earned \$42 a month, an unskilled labourer \$50, an apprentice \$57, a village schoolteacher \$65 and a schoolteacher with a training diploma \$124.²⁷ Low import duties and regular, subsidised coastal transport kept the cost of imported commodities relatively low in the towns.

The growth of the towns provided some opportunities for sale of foodstuffs from adjacent villages, although they were limited by the consumption patterns of the dominant European and Asian communities. Non-traditional foodstuffs were supplied largely by Eurasian and other colonists and villagers failed to respond to urban demand for traditional staples and fish. Rice became the staple of the Irianese in town. Imports of cereals and cereal preparations rose to 13.4 million kilograms valued at \$US 2.5 million in 1961. Imports of 1.6 million kilograms of fish were valued at \$US 0.5 million.

What effect did the large Dutch expenditures have on West Irianese economic welfare? The linkages between village and town remained very slender. Most of the cash income accrued to the small number of wage and salary earners in the urban centres. For a high proportion of the coastal population, occasional

²⁵ Ibid., pp. 88-101 and Appendixes 34-43(2).

²⁶ Most of the remainder were undergoing training in public health, domestic science, telecommunications or meteorology, or were attending secondary school.

²⁷ Ibid., Appendix 28. These figures include the family allowance for a man with a wife and two children.

government or mission employment, or sale of copra, nutmeg, forest products and, near the town, traditional foodstuffs, provided cash for steel utensils, tobacco, cloth and a few other new commodities. Money was peripheral to the economy of most of the population, including almost the entire population of the highlands, much of which still used the stone axe. Over a third of the population had no means of earning cash.

In addition to facilitating the sale of labour and goods to the towns, Dutch expenditures affected villagers in administered areas through provision of administrative, health and education services. Official extension services attempted the introduction of new food crops into village agriculture – peanuts, maize and fish in inland waters – with limited success in some areas.

The Dutch left a skeleton of ports, airstrips and patrol posts from which most of the population could be contacted. In 1961, two-thirds of the indigenous population was said to be under administration. About 8 per cent was under administration influence and one-quarter completely outside administration.²⁸

The Dutch maintained seventeen post offices providing mail and telecommunications links with other centres in Irian Jaya. Hollandia, Biak and Sorong maintained direct international contacts. A radio telephone link connected Biak to Hollandia and Amsterdam. There were local telephone networks in Hollandia, Biak, Manokwari, Merauke and Sorong.

By 1961 the Dutch airlines *Nederlands Nieuw Guinee Luchtvaart Maatschappij* was operating regular DC3 flights between Biak, Jayapura, Manokwari, Merauke and Wamena. Smaller planes flew on other routes. Two mission flying organisations, Mission Aviation Fellowship (MAF) and Associated Mission Aviation (AMA) operated flights to minor centres as demand required. There were a few local roads around the major towns but they covered a very limited area: Hollandia, 140 kilometres; Biak, 135; Manokwari, 105; Merauke, 70; Fak-Fak, about 5. The oil company had built about 120 kilometres of roads in the neighbourhood of Sorong.

The early stages of a number of projects designed to raise smallholder agricultural output had been completed. An agricultural research station was established at Manokwari, financed by the Development Fund of the European Economic Community. At the end of 1961, smallholder developments included the planting of 865 hectares of Banda nutmeg (largely in the Fak-Fak area), 1352 hectares of cocoa (principally in Cenderawasih Bay, but also near Hollandia and in the western islands), and 80 hectares of coffee (with

²⁸ *Ibid.*, Appendix 4A.

greatest concentration in Yapen). Thirty-four coffee observation stations had been established in the central highlands. Rubber plantings began, some on extensive areas of reclaimed land inland from Merauke. An ambitious scheme to make the colony self-sufficient in rice by use of mechanised methods on irrigated land near Merauke produced only 400 tons of rice in 1961.

The European Economic Community financed the basic geological mapping of the Bird's Head in the early 1960s. There were prospects for economic mining and forestry projects elsewhere, but political uncertainties deterred large-scale private investment.

The total legacy of the large Dutch subsidies was very modest, partly because several major programs were stopped before fruition. Moreover, the heavy expenditures on education and political development helped alienate some of the population from their future government. This was especially true of the small number of Irianese who had undergone high levels of education, or who occupied medium to high-ranking administrative jobs. A high proportion of these emigrated to Europe or Papua New Guinea at or after the cessation of Dutch sovereignty.

3 Integration into Indonesia: Administration and Education

Over the past decade, the monetised sector of Irian Jaya has been integrated substantially into wider Indonesian administrative and economic systems. The northern towns have been transformed. Today they all have considerable employment in the small-scale service and manufacturing industries that are characteristic of Malay-Indonesian towns. Jayapura today is a vivid contrast to the relatively high-wage, white-administered, import-dependent, ordered town that was Hollandia and to the towns of Papua New Guinea.

But integration into Indonesian systems is not complete. Irian Jaya towns are more dependent on government expenditure than others in Indonesia, and incomes are higher. And outside the small money economy, most people are little influenced by developments elsewhere in Indonesia. Unique features of government have developed and survived in Irian Jaya's special geographic and cultural conditions.

This and the following chapter describe the process whereby some parts of Irian Jaya have become very Indonesian. This chapter looks at changes in administration and formal education. Chapter 4 covers the response of individual persons and firms to the freeing of movements of people, money and goods between Irian Jaya and other parts of the Republic. Together, they provide a basis for discussion of economic policy and economic development in Irian Jaya as a province of Indonesia.

Administration of West New Guinea passed from the United Nations Temporary Executive Authority to the Republic of Indonesia in May 1963. Some major economic and administrative changes were delayed until after August 1969, when the Act of Self Determination required by the agreement with the Netherlands was completed.

Although the United Nations representative requested the use of a 'one man one vote' system, at least in urban areas,¹ the Indonesian government chose to determine the wishes of the Irian Jaya people through a mutual

¹ United Nations, Report of the Secretary General Regarding the Act of Self Determination in West Irian, New York, November 1969. Note Annex 1, the report of the Secretary General's Representative in Irian Jaya.

consultation (*musjawarah*) system amongst selected representatives. Under close surveillance, seventy-five to one hundred and seventy-five residents in each administrative district (*kabupaten*), most of them Irian-born, were addressed by central and provincial government officials and the United Nations representative and voted unanimously to remain with Indonesia.²

Irian Jaya's unique historical relationship with the Republic has led to unusually tight central government control. Central government supervision of administration in Irian Jaya is vested with the Sektor Khusus Irian Jaya (Special Section for Irian Jaya) within the Department of Internal Affairs.³ Before 1969 all the activities of central government departments in Irian Jaya were financed, staffed and co-ordinated through the Sektor Khusus. In 1969 Irian Jaya was granted autonomous status similar to that held by other provinces in Indonesia.⁴ Theoretically the new regulation gave the provincial government control over the activities of specified departments: agriculture, social welfare, health, education and culture, and public works. It placed other departments under the jurisdiction of corresponding central government offices. Sektor Khusus has in fact maintained its influence over the decisions of autonomous departments because the province is reliant on the central government for staff and finance. Other departments also continue to rely for their Irian Jaya expenditures on a special budget provided through Sektor Khusus.

The Sektor Khusus is responsible for co-ordinating development programs in Jakarta at the formulation stage. This task is especially important and especially difficult because there are four separate programs⁵ and five special budgets for development in Irian Jaya: the provincial component of the national five year plan, *Pelita*; the Fundwi program divided into United Nations and counterpart budgets; the Task Forces program for development of the inland and highlands; and the much smaller central government financed *kabupaten* program. The United Nations component of the Fundwi program is financed by a 1962 Netherlands grant of \$30 million, which lay dormant until Indonesia rejoined the United Nations in 1967. The Task Forces program for inland village development grew from the President's visit to Irian Jaya in 1969.

Bappenas, the national planning organisation, develops the *Pelita* program

² Ibid.; 1025 persons were involved in the consultations. For a sensitive description of the strained atmosphere at a *musjawarah* session, see P. Hastings, *New Guinea*, Melbourne, Cheshire, 1969, pp. 237-41.

³ The Sektor Khusus was until 1969 known as the *Direktorat Irian Barat*.

⁴ See Basic Law No. 12, 1969.

⁵ This excludes the military's 'civic mission'.

in close consultation with Sektor Khusus. Both organisations are involved in supervising the execution of Pelita. The Fundwi program is based on the report of a team of foreign experts,⁶ which used priorities set out by the Sektor Khusus as a frame of reference. The program was worked out in detail in 1968/69 by the United Nations Development Programme in consultation with Sektor Khusus. Sektor Khusus in co-operation with Bappenas and other government departments appoints Fundwi counterpart personnel and assists in the supervision of Fundwi projects. A special section within Sektor Khusus is responsible for formulation and execution of the Task Forces program.

Execution of the Pelita, Fundwi and Task Forces programs is co-ordinated at the provincial level by Lakbangda (Pelaksana Pembangunan Daerah), the provincial planning agency, which has the Governor as its chairman and the provincial Commander-in-Chief as its vice-chairman. Lakbangda's *de facto* role in co-ordinating formulation of the development programs has been of considerable importance in the early stages of preparing the second Five Year Plan. Government policy-making power at the provincial level is formally vested with the Governor and the Provincial Consultative Assembly (DPRD), both first appointed by the President in 1963. But in practice an advisory group to the Governor comprising mainly military leaders is the major policy-making body. The advisory group, called Muspida, is chaired by the Commander-in-Chief with the Governor as deputy and provincial armed forces and police chiefs as members. These *de facto* power relationships are recognised widely and the Lakbangda secretariat acts frequently on the authority of the Commander-in-Chief.⁷

The *kabupaten* governments covering areas with populations similar to the districts in Papua New Guinea were also granted a measure of autonomy in 1969.⁸ They are now responsible for implementation of government policies and supervision of projects in their areas.⁹ Staff of most government depart-

⁶ United Nations Development Programme, *A Design for Development in West Irian*, New York, 1968.

⁷ The central role of the military in Lakbangda that was observed in 1972 was due in part to the personal strength of the Commander-in-Chief Brigadier General Acub Zainal. In mid-1973 Acub Zainal was replaced by Kolonel Sutrisno and some weeks later was himself appointed Governor. This is likely to increase at least formally the strength of 'civilian' structures in decision-making.

⁸ By 1962 the Dutch had established six *afdeeling* (regencies), with capitals at Hollandia (Jayapura), Manokwari, Biak, Fak-Fak, Merauke and Enarotali. The Indonesian administration has added three more *kabupaten* with capitals at Sorong, Serui and Wamena, and has shifted the capital of the Paniai *kabupaten* from Enarotali to Nabire on the north coast.

⁹ See Basic Law No. 12, 1969.

ments are stationed in all the kabupaten headquarters. Co-ordinating authority is vested with the Bupati (District Commissioner) and the kabupaten consultative assembly, but local Muspida also play a crucial role in decision-making at this level.¹⁰

Each kabupaten contains about four KPS (*daerah kepala pemerintah setempat*) administrative units. The KPS have a much smaller complement of government officials than the kabupaten, with representatives only of departments actively engaged in extension or other village activities.¹¹ Each KPS contains about three or four districts covering on average around thirty scattered villages and administered by an appointed district head (*kepala distrik*). The official administrative structure is completed by appointment of a village head (*kepala kampung*). The district and village heads are merely channels for central government instructions and they are not appointed in many areas.¹²

In order to allow introduction of administrative structures used in other provinces¹³ and to lower the cost of administration, the government has begun in some areas to bring together five or six villages into large *desa* units. Attempts at village consolidation have had only limited success. Distrust among neighbouring villages and failure to integrate new village units with opportunities for new, more productive types of economic activity appear to have been the major obstacles. As shown in chapter 1, there is powerful economic logic in traditional patterns of settlement, given traditional patterns of production and transport. It would seem that perceived benefits from new economic activities in which economies of scale are important, including health, education and other government services and trade with or through the towns, will need to be large if the villager is to participate willingly in resettlement.

Insurgency movements have hindered administration and the implementation of policies, especially in the Bird's Head kabupaten of Manokwari. Between 1965 and 1970, tens of thousands of tribesmen from a group inland from Manokwari are reported to have left their villages, and smaller groups made

¹⁰ At the kabupaten level, Muspida is chaired by the kabupaten military commander, with the Bupati as vice chairman and local senior officers of the armed forces and police as members.

¹¹ These include agriculture, health, community development and police.

¹² This was noted by official reports in 1970, which also observed that some *kepala distrik* did not cover all villages within their jurisdiction. On average, one district head has to cover approximately 3000 square kilometres and is responsible for administering a population of 6000.

¹³ There are plans to substitute *kecamatan* on the model of other parts of Indonesia for the current KPS and district divisions.

a series of attacks on widely dispersed government and military outposts.¹⁴ The revolt was broken with the surrender of the two major leaders Lodewijk Mandjatan and Ferry Awom in 1969 and 1970. Less widespread and protracted outbreaks have occurred in other regions both before and after the Act of Self Determination, and a number of clashes have occurred in the vicinity of the border with Papua New Guinea. In each case the army has acted quickly to control the situation.¹⁵

Threat of insurgency and the necessity for strict control for the Act of Free Choice have justified a large military presence, and tight security, including curfews and strict control of movement within Irian Jaya. The dominance of the army has been encouraged by the expansion of military power elsewhere in Indonesia in the years following Irian Jaya's admission to the Republic. In the new province, there were no established centres of civilian power to resist the expansion.

The military influence on provincial administration is pervasive. Independently of the Commander-in-Chief's role in Muspida and Laktangda, the military intervenes frequently to override civilian authority at all levels. Even at the district and village levels, the military co-ordinates the activities of departments involved in extension work and community development when, as is often the case, civilian mechanisms break down.¹⁶ The military is entrusted with implementation of a large part of the Task Forces program and has contributed through its 'civic mission' to road construction and other public investment. The Commander-in-Chief, Brigadier General Acub Zainal, developed an ambitious program of community development in the highlands and began its implementation in 1971 before it was absorbed into the Task Forces program in the following year.¹⁷ In practice the support of the military is necessary for successful implementation of any economic program.

Although the dominance of the military with its own clearly defined hierarchy allows some firm decisions to be taken when civilian processes have produced hesitance and confusion, its activities are an important drain on scarce government funds.¹⁸ And duplication of development efforts by civilian and military bodies and existence of competing hierarchies adds

¹⁴ See Kodim XVII Tjenderawasih, Irian Barat masa ke masa, Jayapura, 1971.

¹⁵ Other isolated outbreaks occurred in Enarotali (Lake Paniai), Piramid (Baliem Valley) and Etambo (Merauke) before the Act of Self Determination in 1969 and in Biak during 1970.

¹⁶ Personal communications, Jayapura, October 1972.

¹⁷ The community development program is known as *operasi koteka* taking its name from one aspect of the program, the efforts to persuade highlanders to discard their *koteka* (penis gourd) and to wear clothing.

¹⁸ Precise data on the size of the military budget are not available.

further complexity to the problems of co-ordinating development activities in Irian Jaya.

As in other parts of Indonesia, there is tight government control over political processes. The provincial and *kabupaten* consultative assemblies are relatively unimportant in policy decision-making, except as channels for bringing local grievances to the notice of the authorities. *Kabupaten* assemblies were formed in 1968 and the provincial assembly was elected for the first time in 1969.

A limited number of political parties was permitted to participate in the 1971 General Elections. The elections in Irian Jaya were covered by a special law, which compromised between the desires to follow Indonesia-wide procedures and to maintain some consistency with methods employed during the Act of Self Determination.¹⁹ Only representatives to *kabupaten* assemblies were elected directly from constituencies. One representative was elected from each district in areas covering about 30 per cent of the population.²⁰ The government party, Golkar,²¹ campaigned strongly²² and won a majority in all but two *kabupaten* and twenty-eight of the thirty-two seats in the provincial assembly. All Irian Jaya representatives to the Jakarta assembly came from Golkar.

Education

The education system in Irian Jaya has expanded rapidly under Indonesian administration (see Table 5). Enrolments at primary schools in 1972 (123,700) were more than double the 1961 level. Although there was rapid growth in government primary schools, in 1970 85 per cent of provincial enrolments were in mission schools. In other Indonesian provinces, most primary enrolments are in government schools.²³ Bahasa Indonesia is the language of instruction in all schools.

¹⁹ See Government Regulation No. 3, 1970.

²⁰ The sixteen elected and four appointed *kabupaten* representatives chose provincial deputies and the provincial DPRD in turn elected representatives to the DPR in Jakarta. A chairman of Golkar announced that the use of 'one man one vote' at the *kabupaten* level indicated that 'the Indonesian Government has been successful in raising the democratic awareness of the people'. Reported in *Expres*, 31 May 1971, p. 6.

²¹ For a description of the composition of Golkar, see P. McCawley, 'General Elections - or an Election of Generals', *Australian Quarterly*, 42(3), 1970.

²² *Expres*, 31 May 1971, p. 6.

²³ Biro Sensus dan Statistik, *Irian Barat Dalam Angka Tahun 1970*, Jayapura, 1972; and R. Daroesman, 'The Finance of Education', *Bulletin of Indonesian Economic Studies*, 7(3), Nov. 1971.

Table 5 Educational enrolments at various levels, selected years

Level	1963	1967	1970
Kindergarten	716	1401	1592
Primary	58,913	81,014	107,058
Secondary	3232	6947	13,473
Courses (primary and secondary)	131	530	735
Tertiary (University)	104	546	632

Sources: Departemen Pendidikan dan Kebudayaan, *Masalah Pendidikan dan Kebudayaan di Propinsi Irian Barat* and Biro Sensus dan Statistik, *Irian Barat Dalam Angka Tahun 1970*.

Enrolment ratios are highest in urban areas and lowest in the highlands. Although primary school enrolments in the highlands kabupaten of Jayawijaya increased eight-fold between 1961 and 1969, the Jayawijaya ratio was only one-third the provincial average in the latter year. In 1969 all but two hundred of the 6600 school enrolments in Jayawijaya were in primary schools.²⁴

Secondary school enrolments in the province have grown at an even faster rate, although there are still far too few places for all graduates of the primary schools. Expansion in government vocational schools has been especially rapid (see Table 6). The Department of Agriculture runs a number of small forestry, agriculture and animal husbandry schools and their graduates have been appointed quickly to public service positions.

Table 6 Enrolments at secondary schools, by type of school, selected years

	1963	1970
General		
Junior High School	1232	4788
Senior High School	184	952
Technical training		
Junior	240	1283
Senior	40	208
Economics		
Junior	66	901
Senior	18	458
Home crafts		
Junior	91	1726
Senior	5	82
Teacher training	1356	3346
Others	0	102

Sources: As for Table 5.

²⁴ Departemen Pendidikan dan Kebudayaan, *Masalah Pendidikan dan Kebudayaan di Propinsi Irian Barat*, Jakarta, 1970.

Accompanying rapid expansion of schooling, there has been some discussion of major problems in the education system. The content and rationale of primary education is drawn from other parts of Indonesia. The major emphasis is on providing inputs into higher education and on catering for the presumed needs of the public service. Yet there were places for only 10 per cent of primary graduates in lower secondary schools in 1970. In an economy where most opportunities for unskilled wage and self employment are taken by immigrants, most primary school graduates will remain in their villages. Primary schooling with its current content will be of little use to them.²⁵

Growth in enrolments has placed severe strain on teaching resources and has been at the expense of the quality of education. Primary pass rates have declined markedly in recent years.²⁶ Many village schools have only one or two teachers and the Task Forces program has provided 200 teachers for highlands schools on an emergency basis. A majority of all school buildings and over 60 per cent of primary school buildings were classed as temporary²⁷ in 1968. Wages and salaries for the 5437 persons in the Education Department account for virtually all the routine budget allocation to education. Pelita allocated only Rp 38 million (less than \$100,000) for school buildings over five years and the Fundwi effort is limited to provision of two model schools for the highlands.

Vocational training is an important part of the education effort. Apart from the vocational schools run by the Education and Agriculture Departments, the Department of Manpower conducts many short courses in typing, ceramics, cabinet-making, mechanical work and other subjects. At the request of *kabupaten* officials, mobile training units have travelled to most urban centres to give courses. Many government departments have run short courses aimed at upgrading the skills of their own personnel.

Some mission schools also have a strong vocational emphasis, especially in the south. Although desperately short of teaching aids and equipment, the Catholic Mission at Merauke has made a major contribution to dissemination of simple artisan, especially house-building, skills.

²⁵ At an education conference at Cenderawasih University in December 1971, it was argued that special courses for students not continuing beyond primary grade 4 should be introduced. See A. Duijnste, 'Inland Village Education. A suggestion for Irian Barat', *Irian*, 1(2), 1972, pp. 24-6.

²⁶ A clear trend is apparent, despite some anomalies in the figures. Pass rates of over 80 per cent in the years 1963-5 declined to around 50 per cent in 1968-70. See Departemen Pendidikan, *Masalah Pendidikan dan Kebudayaan di Propinsi Irian Barat*, Appendix B, and Biro Sensus dan Statistik, *Irian Barat Dalam Angka Tahun 1970*, Table 17.

²⁷ Or 'emergency'. The Indonesian term is *darurat*.

A vocational training centre at Jayapura has been the major recipient of Fundwi allocations to education.²⁸ The project has been allocated \$1.56 million plus Rp 278 million counterpart funds, as much as all other development expenditure on education (see Table 7).²⁹ The VTC contains more sophisticated equipment than is used in any workshop in Irian Jaya, and

Table 7 Allocation of development funds to education in Irian Jaya, 1969-73

<i>Project</i>	<i>Program</i>	<i>Financial Allocation</i>	<i>Progress</i>
Rehabilitation of school buildings	Pelita	Rp 30.5 million	Rehabilitation and refurnishing completed for about six schools.
Sports equipment for schools	Pelita	Rp 7.5 million	Completed.
University of Cenderawasih	Pelita	Rp 97.1 million	Halls of residence and lecture rooms have been constructed, a museum is under construction and subscriptions have been paid for foreign journals.
University of Cenderawasih	Fundwi	\$0.24 million Rp 21.2 million	A professorial appointment and fellowships in the Anthropology Institute have been provided.
Supply of teachers to highlands	Task Forces	n.a.	The Task Forces budget pays 200 teachers working in highland schools.
Vocational training centre	Fundwi	Rp 1.56 million	One vocational training centre has been established in Jayapura and another is planned for Manokwari.
Education planning and administration	Fundwi	\$0.18 million	One expert has been advising on planning and co-ordination of education.
School buildings and model schools	Fundwi	\$0.09 million	One model school has been completed and one is under construction.
Teacher training	Fundwi	\$0.61 million Rp 244 million	Provision of expert advice and equipment for teachers colleges, and assistance in training of teachers, has begun.
Development of education in the highlands	Fundwi	\$0.065 million	

Sources: Official and United Nations publications.

²⁸ A Fundwi vocational training centre was also planned for Manokwari, but the project has been abandoned and a small woodworking shop established in its place.

²⁹ Other education allocations totalled about \$1.33 million plus Rp 380 million.

possibly in the whole of Indonesia.³⁰ One expatriate instructor told us that teaching aids used in the automotive shop were comparable with the best available in Europe.³¹ Seven expatriate staff were employed in 1972. The centre opened in 1971 and in late 1972 had 169 students undertaking two-year courses in automotive, machine shop, electrical, woodworking, carpentry and building trades. Nearly all second-year students and 90 per cent of first-year students were Irian-born. Fifty-nine trainees were due to graduate at the end of 1972.

Neither the background of the instructors nor the teaching aids lend themselves to transmission of skills that are applicable directly in the small workshops that serve the towns. Building courses have been modified to fit more closely local practices, but the institution is not easily adapted to local needs. The large mining companies offer the only employment opportunities for trainees in automotive and machine shop trades.

It is difficult to justify the huge public expenditures on the VTC when other urgent programs are starved for funds. Efforts are being made to train Indonesians to replace the Fundwi instructors (most of whom speak little or no Indonesian), but with little success to date. At the completion of the Fundwi program, the project may be left without personnel able to use and maintain existing equipment. It seems reasonable that the mining companies, who together with the graduates are the major beneficiaries from the vocational training centre, should contribute to its maintenance after termination of Fundwi assistance.

Fundwi has provided fellowships for short-term overseas training in a variety of skills. Eighty-six fellowships had been offered by the end of 1972, including forty-three in aviation, seventeen in education and three each in agriculture and medicine.³² Fundwi fellowships were to be offered only to the Irian-born. The Governor has sought to maintain this principle in what has probably been his most important stand against military and central government officials. All but a few fellowships have in fact been awarded to persons born in the province (*putera daerah*).

Government departments have sent employees for training in other parts of Indonesia. Twenty to thirty trainees attended four-month courses in public

³⁰ The magazine *Expres*, referring to the Governor's pride in the centre, described it as the largest, most modern and best equipped workshop in Indonesia, 9 June 1972, p. 34.

³¹ Personal communication, Jayapura, October 1972.

³² Training provided on other Fundwi projects was also of some importance. This was especially important for 120 tuna fishermen and seventy-five workers employed in forestry.

administration every year between 1963 and 1967, and others were sent for longer periods before the government administrative college near Jayapura was opened in 1968. The Department of Industry has sent trainees to other Indonesian institutions: nineteen have graduated from the High School of Technology in Jogjakarta and twenty-six from other specialist institutes such as the textile institute in Bandung, the chemistry institute in Bogor, the technical school in Ujung Pandang, etc. A further forty-four persons are currently undertaking courses. Almost all the trainees are financed by public funds and are bonded to the government.

At the tertiary level, Cenderawasih University was established very soon after the Indonesian accession to sovereignty, opening in 1962. It has been especially attractive to Indonesian public servants from other provinces, and the courses offered and the timing of classes reflect the predominance of part-time students. Over 50 per cent of the enrolments are in the Faculty of Law, and a very small proportion were enrolled in agriculture or other technical faculties (see Table 8).

Table 8 Cenderawasih University enrolments, scholarships, graduates and teaching staff, 1970

	Enrolments			Scholarships	Graduates	Teaching Staff	
	Irian Jaya- Born	Non- Irian Jaya- Born	Total			Full- time	Part- time
Law	163	211	374	110	71	14	20
Education	42	23	65	22	18	6	15
Teacher training	82	69	151	60	37	23	9
Agriculture	28	14	42	28	10	2	29
Institute of Anthropology	—	—	—	—	—	6	—
Total	299	333	632	220	126	51	73

Source: Cenderawasih University.

The University faces many of the same problems as other Indonesian universities, although they appear in especially severe forms. Standards are affected by the outside employment of faculty members and by lack of funds for books, equipment and other facilities.

The University's Institute of Anthropology was established under Fundwi auspices to initiate research and disseminate information on social structure in the province. The Professor of Anthropology entered a three-year contract in early 1971. One foreign post-graduate student is currently undertaking research in the Baliem Valley and the Professor of Anthropology is supervising

a team of Indonesian scholars in a study of social change in the Jayapura area. Through organisation of and participation in seminars and through publication of the journal *Irian*, the Institute provides forums for discussion of the complex social problems of the province. Many problems have been encountered in research, especially amongst officials who are suspicious of the nature and uses of social inquiry. However, if funds are made available to allow building on the foundations laid in the Fundwi period, the Institute could contribute to a more sensitive approach to development in the province.

The total effort in education has been very large. But formal education has not been integrated into the village lives of the majority of people. And even in secondary, vocational and tertiary education, directed at providing skills that are useful in the modern economy, there is little co-ordination between the efforts of different departments and other organisations. As in other parts of Indonesia, the activities of the Manpower Department have not progressed beyond the operation of labour exchanges and the compilation of rather crude statistics.

Education has nevertheless contributed significantly to achieving a major Indonesian objective: acculturation and the assimilation of the Irianese population. There are now groups of people in all *kabupaten* conversant with the national language; the fact that government is conducted in a language they understand makes it less distant and less alien to many of the coastal Irianese and to increasing numbers of those in the highlands.

The most rapid acculturation has occurred in the major towns, where the Irianese are heavily outnumbered by new arrivals from elsewhere. The markets of the towns are Indonesian, but they have been assimilated into Irianese economic life. Like other Melanesian markets, the Hollandia market place was once characterised by fixed prices and by a relatively limited range of foodstuffs offered for sale. Now Irianese sit at the front of the market, some with vegetables unknown or not valued before recent years and, hesitantly, haggle over prices.

In the highlands acculturation has been a more complex process. The people have had less contact with external cultures and some aspects of culture in the highlands (especially nakedness and the wearing of the penis gourd or *koteka*) are very different from practice elsewhere in Indonesia. Considerable efforts have been made to change rapidly some highland practices, especially through the widespread introduction of clothing. In some areas – around Lake Paniai and amongst the Western Dani – these efforts have had some success. But in others, especially amongst the Dani of the Baliem Valley, they have met with considerable resistance.

4 Integration into Indonesia: Money, Labour and Commodity Markets

Before 1962, wage rates were very much higher in Irian Jaya than in Indonesia, interest rates were much lower and the relative prices of goods and services very different. From 1962 to 1968 the Indonesian economy suffered extreme rates of inflation and chronic foreign exchange scarcity. The freeing of capital, labour and commodity movements between Irian Jaya and Indonesia was bound to transform traumatically the provincial economy.

In recognition of the extent of the required adjustments and of the province's delicate political status, some steps towards economic integration were delayed. Complete monetary union was not effected until 1971. Until 1969, a permit from Sektor Khusus was required for entry into Irian Jaya from other parts of Indonesia, and in late 1972 a separate tariff schedule was still maintained for Irian Jaya.

Nevertheless, a massive immediate readjustment took place. The level of external subsidy fell considerably and most of Irian Jaya's administrative and technical expertise withdrew. Among the 'managers' of the colonial economy, only the missionaries and the medium-sized Chinese businesses remained. In contrast to the transfer of sovereignty in other provinces, where Dutch and other foreign enterprises with foreign personnel continued their operations for several years after Independence, political change in Irian Jaya was accompanied by withdrawal of the banks and the major trading companies. The regular, subsidised coastal shipping service ceased to operate effectively and the most important international trading connection was severed temporarily. Dislocation of international trade was exacerbated in 1963 by confrontation and severance of economic ties with Singapore. This chapter describes the process of integration into the wider national economy and discusses some of the effects of integration on interest rates, wages and commodity prices. Later chapters look in more detail at the effects of these changes on the structure of the economy.

Money, credit and banking

In 1963 the West Irian rupiah (IBRp) was introduced with an initial value

equal to that of the New Guinea guilder it replaced. Trade was freed between Irian Jaya and other provinces. By 1965, however, inflation in Indonesia had brought about a wide disparity in purchasing power, at official exchange rates, of the Indonesian and West Irian rupiahs.

Table 9 Exchange rates, Irian Jaya and Indonesian rupiahs and US dollar and Irian Jaya rupiah, 1963-72

<i>Period beginning</i>	<i>Irian Jaya Rupiah (IBRp)</i>	<i>Indonesian Rupiah (Rp)</i>	<i>\$US</i>	<i>Irian Jaya Rupiah (IBRp)</i>
1963	1.00	62.25	1.00	3.62
1964	1.00	142.00	1.00	3.62
28 Sept. 1965	1.00	500.00	1.00	3.62
13 Dec. 1965	1.00	1000.00	1.00	10.00
13 Dec. 1965	1.00	1.00	1.00	10.00
30 Oct. 1966	1.00	2.76	1.00	10.00
3 April 1967	1.00	10.00	1.00	10.00
17 April 1970	1.00	18.90	1.00	20.00
23 Aug. 1971	1.00	18.90	1.00	21.96

Source: Bank Indonesia, Jayapura.

Prices of many imported goods in Jakarta were ten to twenty times their official prices in Jayapura. This price disparity promoted high levels of 'exports' of movable commodities, including capital equipment and machine parts, from Irian Jaya to other provinces of Indonesia.¹ The foreign exchange available for the import of essential goods was insufficient to meet demand, price levels rose and black markets developed. The black market for foreign exchange rose to 350 per cent of the official rate in 1966-7.

In response to the worsening state of the economy, convertibility between the Indonesian and West Irian rupiahs was suspended, Indonesian importers were required to provide foreign exchange for purchase of West Irian rupiahs and special permission was required for inter-island trade. When the new Indonesian rupiah was introduced in 1965, the West Irian rupiah was devalued vis-à-vis foreign currencies for the first time.

To combat continuing inflation and decline in urban living standards in Irian Jaya the central government made emergency air droppings of food and other supplies in late 1966. Further major devaluations of the Indonesian rupiah vis-à-vis the West Irian rupiah in 1967 and 1970 helped restore purchasing power parity, and controls on inter-island trade and payments

¹ United Nations, *A Design for Development in West Irian*, p. 28.

were withdrawn. The low provincial tariffs were reduced. Most commodities were freed from the price controls applied in 1963 and controlled prices were raised to reflect market conditions. Minimum wages and public service salaries were increased in 1967-8.

Periodic shortages of basic commodities continued between 1967 and 1969, largely as a result of irregular shipping. Immediately before the Act of Self Determination the central government made a large amount of credit available to importers for purchase of consumer goods,² introduced a shipping subsidy and donated several ships to the regional government for improvement of coastal services.

With greater economic stability elsewhere in Indonesia, the government was able to effect further reforms after the Act of Self Determination. The Indonesian rupiah became legal tender in February 1971. The West Irian rupiah has been withdrawn progressively and is now rarely encountered. When foreign exchange purchases were freed throughout Indonesia at the time of the parity realignment in 1970, Irian Jaya importers could purchase foreign exchange from the local banks and the costly procedure of applying for funds through Jakarta ceased to be necessary.

The provincial monetary system is now substantially integrated into the national system. The Jayapura branch of Bank Indonesia provides a central banking service. The Export-Import Bank trades through its branches in each of the five major urban centres. The regional development bank, Bapeda, lends on a very small scale to construction and small industries, but the recently established Irian Jaya Joint Development Foundation is a financial institution of considerable potential importance.

Interest rates are above those current during the colonial period but are still lower than elsewhere in Indonesia. Importers can obtain bank credit in Irian Jaya at 1.5 per cent and exporters at 1 per cent per month. By contrast, importers elsewhere in Indonesia could not obtain bank credit for general import purposes until very recently.

Despite this favourable treatment there is a net transfer of resources to other parts of Indonesia through the banking system. At the end of August 1972, outstanding bank credit in the province stood at Rp 1835 million, against Rp 3216 million in time and demand deposits. Demand deposits accounted for almost all deposits, although time deposits were growing at a faster rate.

² In 1968-9, OPSUS, a central government intelligence agency, provided special credit of Rp 2.3 billion (about \$6 million) to importers in Irian Jaya. Most was never recovered (personal communication with bank officials in Jayapura, October 1972).

In contrast to banking practice elsewhere in Indonesia, no interest is paid on demand deposits and some residents find it expedient to hold their funds outside the province. The explanation of this anomaly is not clear; it would probably change quickly with more competition in provincial banking.

Credit granted by the Export-Import Bank rose dramatically from Rp 181 million in 1969 to over Rp 1000 million in 1971. Importers have always obtained the largest share of bank credit. Credit to exporters has fluctuated around 10 per cent of the total. 'Other credit', primarily for construction and consumption by government employees, has risen rapidly since 1969 (see Table 10).

Table 10 Credit advances by categories, Export-Import Bank, Irian Jaya, 1969-71 (per cent)

	<i>Export</i>	<i>Import</i>	<i>Other*</i>	<i>Total</i>
1969	9	56	35	100.0
1970	13	66	21	100.0
1971	6	48	46	100.0

* Construction, local trade and production and consumption.

Source: Export-Import Bank, Jayapura.

The use of credit in the province is concentrated most heavily in Jayapura (50 per cent of the total), Biak (25 per cent) and Sorong (12 per cent). Sorong is the only centre where exporters have received a major share of bank credit. In mid-1972, over half of outstanding credit through the Export-Import Bank in the Sorong area went to exporters of copra, crocodile skins and timber.³

In Jayapura, 70 per cent of bank credit was outstanding to importers, 15 per cent to construction firms, 5 per cent to local producers (principally building materials), 3 per cent to inter-island traders and 1 per cent to exporters.

Less formal credit institutions are important in local trade, urban services and small-scale urban production. For example, importers have financed much of the growth of urban transport services through loans for purchase of 'mini-buses'. Interest is usually collected as part of the price of the vehicle rather than as a separately accounted item. Importers have also provided credit for construction and for inter-island and retail trade. Many small-scale entrepreneurs migrating from other provinces have been financed by their suppliers in Surabaya, Ujung Pandang and Jakarta or have financed themselves through sale of commodities carried with them on the journey.

³ Loans to exporters from Fak-Fak are probably included in this figure as there is no branch of the Export-Import Bank there.

The Irian Jaya Joint Development Foundation grew from a recommendation of the 1967 Fundwi Survey Mission. The United Nations Development Programme and the Indonesian government have each committed \$4 million to the Foundation, of which over half had been called by late 1972. There are five members of the Board of Commissioners, of whom four are appointed by the government of Indonesia (one nominated by the Governor of Irian Jaya) and one by the Administrator of the UNDP.⁴

The Foundation was legally established in December 1970, but it has been slow to begin lending. The Executive Management Board was substantially complete in late 1972, with three expatriate officers, of whom two will remain with the organisation, and two senior executives from Bapindo, the Jakarta-based national development bank. The appointment of one more Indonesian official will complete the executive staff.

The Foundation is under no obligation to pay dividends. It can borrow on its own authority, so long as it can meet interest payments out of income due. It is empowered to assist private or public enterprises by loans on concessionary terms, equity investment or managerial and technical assistance. Although clear policies have yet to be formulated, the Chief Executive envisages that loans to large-scale enterprises in the modern economy will absorb most of the Foundation's resources.

Many applications for assistance were lodged before the Foundation was ready to consider them. Upon investigation many appeared insubstantial and many of the originators of others had lost interest. The first two loan offers were made in October 1972 to a value of slightly over Rp 30 million.⁵ Rapid growth in lending is anticipated.⁶

Labour markets

The influx of immigrants from other parts of Indonesia has been the most important agent of structural change in the monetary sector of the Irian Jaya economy. The immigrants have been of three types: officials and skilled

⁴ West Irian Joint Development Foundation, *First Annual Report and Financial Statement*, Jakarta, 1972.

⁵ A large loan was offered to Merpati for the development of tourism and a very small one to a local fisherman for equipment.

⁶ By 30 June 1973 the Foundation had granted approval for loans of about Rp 621 million for fifteen projects, of which Rp 53 million had been dispersed. Very low interest rates are charged: 6 per cent for projects relating to agriculture, animal husbandry, fisheries and forestry, 9 per cent for manufacturing projects and 12 per cent for other projects. See West Irian Joint Development Corporation, *Second Annual Report and Financial Statement 1972-73*.

employees of the government and large companies arriving to take up employment arranged in advance; resettlement farmers brought from Java to Irian Jaya under the government transmigration scheme; and self-financed settlers hoping to find employment on their arrival.

After the very large immigration of Indonesians to restaff government in 1962 and 1963, arrival of persons with technical and administrative skills from other provinces has occurred on a much smaller scale.⁷ Demand for technical skills has risen rapidly since 1969, with the increased activity of foreign companies in mining and fishing. The new companies have attracted some personnel from other provinces with offers of high remuneration, but have relied heavily on imported Filipino, Korean, Japanese, Australian and American skilled workers.

The middle and upper echelons of the bureaucracy are staffed predominantly with persons from other provinces. Official statistics indicate that the number of non-local civil servants reached 4150 in 1968, just under one-third of the 13,337 civil servants employed in Irian Jaya. Since then, local civil servants (*pegawai daerah*) have accounted for all of the increase in employment and have replaced large numbers of non-locals. In 1971 only 2429 of 15,480 civil servants were classified as non-local. However, it is probable that a significant proportion of local appointees were immigrants from other parts of Indonesia.

Official data provide no breakdown between local and non-local officials employed at various levels of government. A small number of Irianese occupy high positions in the civil administration: in 1972 the Governor, four of the nine Bupatis and the heads of the Agricultural Service and the Provincial Economic Bureau had been born in Irian Jaya. However, other department heads come from outside Irian Jaya and the Irian-born generally fill the lower echelons of the service.

Some senior officials we interviewed indicated that they had little respect for indigenous leaders, who were often poorly educated and who had had little senior administrative experience before being thrust into executive roles. Informants suggested that conflict between senior Irianese and their more skilled assistants led frequently to considerable tension. One well known example was the conflict in mid-1972 between the Bupati of Paniai, Karel Gobai, and his Javanese deputy. Karel Gobai accused the latter of taking decisions without his knowledge and was in return charged with incompetence by his deputy. Gobai left his post in anger to muster support in Jakarta and was subsequently dismissed.

⁷ No data are available on the numbers and skills of military personnel in Irian Jaya.

Indonesians from other provinces hold all senior positions in the military hierarchy, which are the centres of effective power. Most members of the elected assemblies are local but, as observed before, these offices are of minor importance.

Wages and salaries for skilled personnel are very high by Indonesian standards. Special higher civil service salaries apply to Irian Jaya alone and civil servants appointed from outside the province receive a cost of living allowance that is almost as high as their salaries.⁸ The general standard of living of many civil servants in the major towns is very high by Indonesian standards. Although locally produced foodstuffs are expensive, the low tariffs on imported consumer goods and easy access to government-owned cars and cheap consumer credit from the Export-Import Bank gives them mobility and the capacity to obtain a wide range of consumer goods.⁹

The material attractions have not secured an adequate supply of sound officials. Several high-ranking officials commented that the quality and motivation of officials in Irian Jaya was very much poorer than elsewhere in Indonesia. It is possible that reduction in political tensions within the province after 1969 and the growth of common Indonesian facilities in the towns of Irian Jaya will bring about slow change in the supply of administrative skills from other provinces. The development of local administrative cadres that are effective in an Indonesian environment is a very long term task.

Although the prospect of filling empty Irian Jaya with farmers from overpopulated Java has had romantic appeal in Indonesia, the province has not been a priority region for official resettlement. Only about 450 families had arrived under the official transmigration scheme to the end of 1971. Most of these have begun farming close to Merauke,¹⁰ Jayapura¹¹ and Manokwari.¹² Faced with unfamiliar soils, terrain and climate, the need to change consumption patterns (rice cannot be grown in the highlands), marketing difficulties and some hostility from local people, some settlements have broken up and their members have moved into commerce and other employment in urban areas. The transmigration schemes in the highlands broke up and settlers now

⁸ Civil servants at lower salary levels A2 and C2 and at higher levels E2 and F3 received salaries of Rp 3780, 6804, 13,154, and 17,766 per month respectively and outsiders at the same levels received an additional Rp 3307, 6615, 12,285 and 16,537 per month.

⁹ One journalist has described Irian Jaya as a 'paradise' for civil servants. See Tjoek Soedarmadji, 'Dari "Neraka" djadi "Sorga" pegawai negeri', *Merdeka*, 7 June 1972.

¹⁰ Kumbe, Kurik and Kuprik.

¹¹ Dosai.

¹² Oransbari.

make up a large proportion of the shop and market traders in Wamena. A majority of transmigrants to Kurik have moved to Merauke to take up labouring and artisan jobs.

Some small groups of transmigrants have done very well in Irian Jaya. Settlers near Jayapura and Nabire have become market gardeners and important suppliers of vegetables to the towns.¹³ With these and larger, better planned future projects the government hopes to introduce new farming techniques and to encourage commercial farming by the local people. Problems of adjustment have been least severe in settlements adjacent to Merauke, where rice can be grown either in the remnants of the technically irrigated scheme commenced by the Dutch (at Kumbé) or through reliance on wet-season rain (at Kurik and Kuprik).¹⁴ There seems to be considerable scope for new paddy farming in the Merauke area.

Un-sponsored settlers, principally from south and southeast Sulawesi and Maluku, have arrived in large numbers and now comprise an overwhelming proportion of new arrivals. Substantial migration occurred when a permit was still required from Sektor Khusus and the rate accelerated sharply after the abolition of the permit system in 1969.

Table II Recorded movements between Irian Jaya and other provinces on Pelni inter-island vessels, 1966-72

<i>Period</i>	<i>Arrivals</i>	<i>De-partures</i>	<i>Net Immigration</i>
1966	17,332	16,373	959
1967	10,407	6808	3599
1968	14,461	11,663	2798
1969	15,695	12,658	3037
1970	23,538	18,928	4610
1971	23,940	17,390	6550
Jan.-June 1972	13,510	8125	5485

Source: Pelni records, Jayapura.

Most of the 'spontaneous' migrants, together with the official transmigrants, travel on the regular Pelni inter-island shipping connections. The figures set out in Table II suggest a minimum figure for internal migrations by sea. In addition there was an unknown but significant level of unrecorded travel

¹³ A recent report stated that most of the Dosai settlers had radios and sewing machines and that some had purchased sewing machines and opened shops. See *Antara Financial and Economic News*, 7 June 1972, p. 7.

¹⁴ The Directorate of Transmigration estimated the per capita cash income of Kuprik migrants at \$130 in 1971.

Irian Jaya

on Pelni vessels and limited movements on traditional small craft and navy and chartered vessels. With more questionable accuracy, the regional shipping authority estimates that net migration from all ships rose from a little over 5000 in 1970 to just under 10,000 in 1971.¹⁵ The authority's figures confirm a general picture of much greater net migration into and movement of people to and from the four main northern ports, Jayapura, Biak, Manokwari and Sorong, than through the southern ports of Merauke and Fak-Fak.

Travel to Irian Jaya is expensive in terms of a labourer's wage in Ambon, Ujung Pandang, Surabaya and Jakarta, the main ports of embarkation. The lowest fares to Jayapura range from Rp 7710 from Ambon to Rp 15,280 from Jakarta, about 10-20 per cent of the annual wage of a relatively skilled worker in these towns. As could be expected wage rates in the major northern towns which receive the immigrants are very much higher than in the migrants' areas of origin. In November 1972, daily wage rates for unskilled workers ranged around Rp 400-500. These were probably the highest rates in Indonesia, being slightly above those paid in East Kalimantan and Riau in 1971.¹⁶ Rates in Sorong, Manokwari and Biak were slightly below the Jayapura figures. It is difficult to make comparisons of purchasing power, but the low price of rice in Irian Jaya probably offsets the higher prices of some other commodities important in the consumption patterns of low income workers.

Variations in wages within the province were as great as inter-provincial variations. In Merauke and Fak-Fak labourers were paid about Rp 100 per day. Rates were even lower in Agats, where payment for casual work was often made in tobacco. High intra-provincial transport costs and poor communications are the major causes of the wide variation in wages in different parts of the province.¹⁷

Markets for goods and services

Fixed prices and subsidies to a wide range of public utilities were important aspects of economic policy in the early years of Indonesian administration of Irian Jaya. The fixed prices that were inherited from the Dutch were the source of major distortions in a period of general inflation. Artificially low prices

¹⁵ Daerah Pelayaran IX, Laporan Tahunan 1971, Jayapura, 1972, Appendixes 10A and 10B.

¹⁶ H. W. Arndt, 'Regional Wage Differentials', *Bulletin of Indonesian Economic Studies*, 8(1), March 1972, pp. 89-92.

¹⁷ For example, the lowest boat fare from Merauke to Jayapura is higher than from Ambon or Ujung Pandang (Macassar).

for electricity, fuel, transport and telecommunications strained the budget and contributed to capital consumption and deterioration in the quality of services.

However, most controls over prices and most subsidies to government enterprises had been eliminated by 1972. Subsidies to most public utilities were eliminated gradually after the Act of Self Determination in 1969,¹⁸ and prices were adjusted to reflect costs more accurately. Fuel prices were revised in 1970 when Pertamina took over distribution from Shell. Petrol and kerosene are sold at the same prices throughout Irian Jaya, so that major centres in the north effectively subsidise distribution in the south. Petrol was sold at the all-Indonesian price of Rp 35 per litre in late 1972, but kerosene at Rp 20.8 per litre was twice the price charged elsewhere in Indonesia. The prices for aircraft and diesel fuel are allowed to vary with the cost of internal transport. Diesel fuel is sold at Rp 14 per litre in Jayapura, Sorong and Biak where there are major bulk installations, but at Rp 49.8 per litre elsewhere.

When the national electricity company (PLN) took over from the regional authority in 1971, electricity rates were increased up to ten times. At the same time, the previous single rate for all users was replaced by multiple rates. After the increases, the average price of electricity was about Rp 33 per kilowatt hour. These very high rates are partly due to the high cost of diesel fuel.

Transport and telecommunications charges were also increased in this period. Merpati, the internal Indonesian airline, doubled fares on main routes in Irian Jaya in March 1970. Telegraph and telephone rates were increased to between two and a half and four times those charged elsewhere in Indonesia. Shipping freight rates were raised by nearly 400 per cent in June 1970 as part of an attempt to improve shipping services. Ton-mile rates are now more than 50 per cent higher than for other places in Indonesia.

Price control was maintained over a wide range of commodities until 1967-8. Most prices were freed in this period and prices of the remaining essential goods were revised to fit in with market conditions. Controls on the prices of sugar, salt, tobacco and all other goods except rice were removed after the Act of Self Determination. Rice remains pegged at Rp 38 per kilogram, well below the present prices in Java despite sea transport to Irian Jaya and the high cost of air transport to inland areas.

Improvements in inter-island shipping services have combined with changes in consumption patterns and in trading institutions to promote increased trade between Irian Jaya and the rest of Indonesia. By late 1972, the four major northern ports were well integrated into Indonesia's inter-island

¹⁸ See chapter 5 for details of these subsidies.

shipping system. Four Pelni ships of about 2230 DWT ran two routes between Jakarta and Jayapura, one regularly via Makasar and Surabaya and one via Ampenan, Lombok and Kupang.

At the transfer of sovereignty, small, established Chinese firms and firms established by the personnel of the departing companies replaced the European trading companies and retained their old trading links. Arrival of a few large national firms with inter-island trade connections has had some effect on the perspective of provincial importers. Equally significant has been the arrival of many small-scale 'round trip traders' who accompany their cargoes from Surabaya or Ujung Pandang and so reduce pilferage. They stay in Irian Jaya as long as required to sell their wares. Their activities have made important inroads into the business of established importers, and have reinforced the effects of changed consumption patterns. The consumer preferences of immigrants from other parts of Indonesia are very different from the import-oriented consumption patterns of the Dutch and Eurasians that they replaced in Irian Jaya's towns. Growth in numbers of employees from other parts of Indonesia caused the company responsible for construction at the copper mine to begin purchase of food supplies from Ujung Pandang in October 1972.

Inter-island exports are negligible but imports from other provinces have grown very rapidly. In 1971 inter-island imports reached 81,000 tons, about one quarter of total imports; by mid-1972 they were almost as large as those from other countries. The growth of inter-island trade has been boosted by the national petroleum company's switch in 1972 from Singapore to Indonesian sources for petroleum products. It will grow further when Amapere, the port of the copper mine, begins to draw a higher proportion of its requirements from national sources.¹⁹ In 1971 Amapere accounted for nearly one-third of the volume and two-thirds of the value of all Irian Jaya imports from foreign sources.

In addition to the major items oil and rice, imports from other Indonesian provinces include cigarettes, household goods (plastic and enamel goods), cloth and clothing from Surabaya and Jakarta, fruit and vegetables from Ujung Pandang and fresh meat from Kupang and Lombok. In the second half of 1972, beer from Surabaya was introduced for the first time and made rapid inroads into the established markets of Singapore and Netherlands brands. All condensed milk supplies now come from Jakarta.

The increase in inter-island trade in recent years has occurred despite Irian Jaya's remaining outside the Indonesian tariff system. Inter-provincial trade

¹⁹ See chapter 8.

is free, but the low Irian Jaya tariff gives little protection to national suppliers. Complete integration was scheduled for April 1972 but has been postponed indefinitely, partly for administrative reasons. Pressure from Jakarta manufacturers has led to tariff changes for a few commodities. The importation of assembled radios has been prohibited, as in other parts of Indonesia. The tariff on condensed milk has been raised from 3 per cent to the Indonesian level of 75 per cent. Further integration of the tariff structures may lead to further substitution of inter-island for international supplies, but only at considerable cost to provincial standards of living and economic growth. Table 12 indicates the extent of the tariff differences.

Table 12 Indonesian and Irian Jaya tariff levels, October 1972, selected commodities among major Irian Jaya imports (per cent)

<i>Commodity</i>	<i>Indonesian tariff</i>	<i>Irian Jaya tariff</i>
Chicken	30	0
Fish	20	9
Condensed milk	75	75
Coffee and tea	150	9
Sugar	60	9
Aerated non-alcoholic drinks	210	0
Beer	210	0
Tobacco	20	9
Textiles	varying c. 100	0-9
	Cotton textiles c. 40	
Steel	0-40	0-9
(galvanised iron sheets)	40	9
Electrical machinery	20-30	9
Other machinery	0-75	0-9
	(mostly 20 or 30)	(mostly 9)
Cement	130	9
Lumber	60	9
Automobiles: sedan	200	75
delivery van	30	9
bus	60	9
truck (built up)	60	0
Aeroplanes	0	0

Source: Schedule made available by Kepala Kantor Inspeksi Bea dan Cukai, Jayapura.

Despite the increasing degree of integration of the province into the national economy, in 1971 Irian Jaya was still more dependent upon foreign imports than any other province. Per capita imports averaged about \$35, nearly three

Irian Jaya

times the national average of \$12,²⁰ even though 80 per cent of the provincial population had almost no access to imported commodities. Even when the foreign enclaves and different tariff structures are integrated, geographic factors are likely to cause continued high import dependence in Irian Jaya.

Extension of Indonesian administration, development of education and integration into the national economy have been major goals of the Indonesian government in Irian Jaya. These goals have been pursued at considerable national cost and have been accompanied by large international subsidies.

²⁰ Our own rough estimates put per capita imports at \$0.50 in South Kalimantan, \$0.60 in Maluku, \$0.75 in South Sulawesi, \$1.25 in West Sumatra, and \$1.30 in North Sulawesi. The much higher national average is accounted for largely by Java's dependence on imports, and the low outer islands level of imports is to some extent influenced by trans-shipment of imports from Java.

5 Public Finance and Resource Allocation

Irian Jaya receives an extraordinarily high level of national and international subsidy. In recent years it has been of a similar order of magnitude to Dutch subsidies in colonial times and not far below the per capita subsidy to Papua New Guinea from Australia. But the impact of government expenditures on provincial incomes and especially on indigenous incomes has been relatively small.

Skilled manpower, materials and communications are all very expensive in Irian Jaya and this raises the cost of any public program. The limited extent of monetised economic activity has limited local capacity to raise taxation and has caused very heavy reliance on external finance. The effectiveness of government expenditures in raising local incomes has also been reduced by inadequate co-ordination of public sector expenditures.

The total budget for Irian Jaya has run to nearly Rp 16 billion annually over the past few years (see Table 13). The central government grants are larger than those to the most populous provinces of Indonesia.¹ The special routine grant to Irian Jaya has ranged between 15 and 20 per cent of total central government subsidies to provincial routine budgets over the past few years.

The central government subsidy to the Irian Jaya development budget was a much smaller proportion of the national total, but at Rp 3.5 billion in 1970/71 and 1971/72 it was still considerably higher than to many more populous provinces.²

¹ In 1971/72 West Java received a Rp 6.85 billion subsidy from the central government for routine expenditures, compared with Rp 9.15 billion to Irian Jaya. In that year, the 21 million residents of West Java received Rp 317 per capita while residents of Irian Jaya received Rp 11,024. See R. Daroesman, 'An Economic Survey of West Java', *Bulletin of Indonesian Economic Studies*, 8(2), July 1972, p. 47.

Comparison is complicated by the inclusion of subsidies to central government departments in the central government grant to Irian Jaya. There are no equivalent grants to other provinces. But excluding these grants the subsidy to Irian Jaya was over 13 per cent of the total Rp 83.5 billion grant to the provinces in 1972/73. See RAPBN 1971, 1972/3.

² For example, West Sumatra and North Sulawesi. See Hindra Esmara, 'An

Table 13 Irian Jaya budgets, 1971/72 and 1972/73 (Rp million)

		1971/72	1972/73
Routine Budget		12,362	12,132
Central government subsidy		9151	^a
Special rice subsidy		1500	
Provincial Income		1711	^a
Company taxes	265		
Income tax	104		
Other tax	234		
Import duties	673		
Income from sales, etc.	344		
Rebtributions	36		
Other	55		
Development Budget		3500	3500
Fundwi		1934	1831
Pelita ^b		816	1669
Task Forces		750	
Kabupaten Subsidy		80	109
Total		15,942	15,741

^a Breakdowns not available.

^b Includes counterpart expenditures on Fundwi projects. See Table 15.

Source: *Nota Keuangan RAPB Propinsi Irian Barat* [Financial note on the Irian Jaya Budget] 1971/72 and 1972/73.

The central government finances over 80 per cent of all routine expenditures. The proportion of the routine budget financed by provincial revenues is high compared with other Indonesian provinces, but it is inflated by the retention of revenue from customs duties, excise and personal and corporate income taxes, which are paid to the central government in other provinces. As shown in Table 13, these taxes accounted for well over half the provincial government contribution to the routine budget in 1971/72. The sources of revenue retained by provincial governments elsewhere are still small.

The routine budget covering government salaries, maintenance of government offices and various subsidies has accounted for about 80 per cent of government expenditure in recent years. Table 14 shows how the composition of the routine budget has changed since 1969/70. Since becoming autonomous units under Basic Law No. 12 in 1969, kabupaten have been granted more control over the allocation of funds within their areas. The grants to kabupaten are largely to cover wage and material costs which were previously paid by

Economic Survey of West Sumatra', *Bulletin of Indonesian Economic Studies*, 7(1), 1971, pp. 37-9 and Boediano, 'An Economic Survey of North Sulawesi', 8(3), 1972, pp. 87-9.

Table 14 Routine expenditure (planned), 1969/70 to 1972/73

	1969/70	1970/71	1971/72	1972/73
A. Rupiah million				
General				
Personnel	1602	3310	2484	855
Equipment, goods	498	733	2865	1219
'Development' items	—	—	916	1857
Departmental services (central departments)	—	—	—	2149
Other	2934 ^a	2332 ^b	—	—
Special rice subsidy	1590	1570	1500	1300
Provincial grants to <i>kabupaten</i>	—	793	2224	3483
Other subsidies				
Non-rice food subsidies	450	250	—	—
Fuel	387	327	378	—
Other	—	—	578 ^c	582 ^d
Central government administration of Irian Jaya (esp. Sektor Khusus)	510 ^e	397	888	733
Reserve	40	800	529	154
Total	8011	10,512	12,362	12,332 ^f
B. Per cent				
General				
Personnel	20	31	20	7
Equipment, goods	6	7	23	10
'Development' items	—	—	8	15
Departmental services (central departments)	—	—	—	17
Other	37	22	—	—
Special rice subsidy	20	15	12	11
Provincial grants to <i>kabupaten</i>	—	8	18	28
Other subsidies				
Non-rice food subsidies	6	2	—	—
Fuel	5	3	3	—
Other	—	—	5	5
Central government administration of Irian Jaya (esp. Sektor Khusus)	6	4	7	6
Reserve	—	8	4	1
Total	100	100	100	100

^a Includes expenditure on Act of Self Determination.

^b Includes Rp 1202 million on 'social, political and economic matters'.

^c Includes Rp 321 million for provincial government enterprises and Rp 257 million for schools.

^d No specification.

^e Includes Rp 321 million for UN Mission on Act of Self Determination.

^f Includes Rp 200 million deficit not covered in total planned revenue of Rp 12,132 billion.

Source: *Nota Keuangan RAPB Propinsi Irian Barat* [Financial note on the Irian Jaya Budget] 1971/72 and 1972/73.

the provincial government. They also cover large allocations to schools and general 'development' activities. Since 1971/72 a separate 'development' item has appeared in the routine budget covering expenditure previously included under other headings,³ and to a lesser extent funds released by elimination of a number of subsidies formerly paid by the provincial government. Just under 6 per cent of the routine budget was allocated to the central government for administration within the Sektor Khusus in 1972/73.

The special rice subsidy which maintains prices at IBRp 2 per kilo throughout the province remains a substantial element in the budget. It has fallen slightly in recent years, but realised expenditures may be well above allocations in 1972/73 owing to the rise in world and Indonesian rice prices. Upward price adjustments over the period 1969-71 enabled elimination of many of the subsidies which were required for maintenance of low commodity and public utility prices and which had placed major strains on the provincial budget. Transfer of responsibility for fuel and electricity distribution from provincial government bodies to Pertamina and the PLN and subsequent rationalisation of prices enabled subsidies for these services to be removed. Since 1971 Merpati has operated without subsidy and the subsidy for telegraph and telephone services has been reduced substantially.

Over 40 per cent of the Rp 1.8 billion allocated by the provincial government for 'development' in the routine budget in 1972/73 is to be spent on government administration and equipment. Preparation for a new kabupaten capital close to Jayapura at Abepura, administrative reorganisation, and expenditures on health, education (each Rp 150 million), roads and bridges (each Rp 100 million) are other important items in this 'development' budget.

Within the major development budgets, over 50 per cent of expenditures in Pelita and Fundwi programs in recent years have come from the United Nations grant (Table 15). Government allocations to Fundwi counterpart funds have been over double those to the Pelita program drawn up by Indonesian planning authorities. As a result, development expenditures by the Indonesian government have been influenced towards Fundwi priorities. Most of the Fundwi expenditures have been directed towards transport and communications. Sea and air transport have together been allocated over \$10 million and telecommunications and road transport have also received large allocations (see Table 15). Second priority has been given to projects aimed at developing human resources, especially vocational and teacher

³ In 1969/70 and 1970/71 the 'Other' category under General Expenditure in Table 14 included some 'development' items such as development of air and sea communications, and rehabilitation of infrastructure.

training. The remaining Fundwi funds have been spread over a large number of projects with development of sea fisheries and forestry receiving special attention.

Table 15 Planned Pelita and Fundwi development expenditures, 1969/70 to 1971/72^a (Rp million)

	Total	Indonesian Government		UN Allocation
		Pelita	Fundwi Counterpart Funds	(Fundwi) ^b
Total	16,567.2	2581.7	5308.5	8676.0
Percentage Distribution				
Communications	56	13	73	57
Sea transport		4	25	25
Air communications		—	34	21
Road transport		5	11	5
Telecommunications		5	4	6
Primary Industry	15	13	10	18
Agriculture ^c		5	4	5
Forestry		7	4	5
Sea Fisheries		1	2	8
Education, etc.	12	5	11	15 ^d
Electricity	5	13	2	5
Health	4	8	3	3
Public Works	2	15 ^e	—	—
Industry	1	3	—	1
Other	5	28	—	1
	100	100	100	100

^a Three-year allocations 1969-72 of Pelita and Counterpart funds and UN allocations to completion of Fundwi projects.

^b US\$ = Rp 400.

^c Includes animal husbandry and inland fisheries.

^d Includes 7 per cent on vocation training centre and 5 per cent on teacher training.

^e Primarily for housing, drinking water, sewerage.

Source: Fundwi, *Laporan Tahunan Lakbangda*, March 1972.

Overall emphasis in the Pelita program is similar to Fundwi but greater stress is placed on urban services (electricity supply, drinking water, drainage, housing, and urban transport). Pelita also makes substantial allocations to equipment for Lakbangda (Rp 329 million), equipment for Radio Indonesia (Rp 110 million) and construction of religious buildings (Rp 86 million).

Most of the Task Forces annual budget of Rp 750 million for 1970/71 and 1971/72 has gone towards village development courses (Kursus Pelopor

Tembangunan Desa KPPD), provision of agricultural equipment and extension services, supply of teachers to highlands schools and (planned) resettlement of highlands villages. The per capital kabupaten subsidies from the central government have amounted to only Rp 244.7 million since beginning in 1970/71, but they appear to have had a significant impact on kabupaten infrastructure. These funds have been used to improve urban roads in Sorong and Wamena, minor roads connecting towns, several urban markets, and the airports at Serui and Merauke.⁴

Execution of development programs has proceeded less quickly than planned. No plan for Irian Jaya was included in the original national Pelita and this delayed the provincial execution of Pelita by ten months. Distance from Jakarta, poor communications and an inexperienced administration have caused delays. Longer-term programs were disturbed in 1969 by the Act of Self Determination. Until the surrender of Ferry Awom in late 1970 development projects could not begin in a large part of the kabupaten of Manokwari. Execution of the Task Forces program has been hampered by delays in the arrival of funds to project areas⁵ and by problems of transporting materials to the highlands. Periodic shortages of cement, corrugated iron and other imported building materials and lack of private, local stocks have held up construction.⁶ In mid-1972, most Pelita projects were at least one year behind schedule.⁷

Fundwi projects have also been delayed by transport, communications and organisational problems. Several, including the Irian Jaya Joint Development Foundation, were held up by difficulties in recruiting appropriate personnel. Delays in the arrival of counterpart funds have reduced the effectiveness of some Fundwi expenditures. Costs on some projects were very much higher than anticipated and unforeseen problems prevented implementation of others. A major review of the program was undertaken in

⁴ Roads have been built to connect Saruni and Mararena, Blak and Korem, Serui and Matembo and Wamena and Pikke. Market places have been constructed in three highlands centres (Wamena, Enarotali and Waghete) and at Nabire and have made important contributions to local trade.

⁵ For example the KPPD at Wamena still awaited funds for the 1971/72 financial year in mid-1972.

⁶ In 1972 a meeting of organisations concerned with Irian Jaya development recommended that the provincial government put capital into a 'pooling system' to ensure continuity in supply of these essential goods.

⁷ In February 1972 a Sektor Khusus team sent to investigate the progress of Pelita projects throughout Irian Jaya reported that for 1969/70 11.4 per cent (Rp 281.1 million) and for 1970/71 22.7 per cent (Rp 659.9 million) of the total development budget had not yet been disbursed.

July 1971, when funds allocated to the abortive Forest Industries Development Corporation were made available to other projects. However, it is hoped that almost all major disbursements will have been completed by the end of 1973.

The budgetary framework for public expenditures has reduced their effectiveness. Programs and annual budgets have not been framed specifically to further government economic objectives in the province. Projects have been selected without comparison of returns from alternative patterns of expenditure. Indeed, the fragmentation of budgets has made it almost impossible to make such comparisons or to formulate integrated programs.

The fragmentation of budgets appears to be an unnecessary aggravation of planning problems. The division of budgets into routine and development is largely spurious. Apart from the usual arbitrariness of the division, the routine budgets have their own development sections which are not integrated with the development budgets and much of the development budget is used for rehabilitation and repairs. The division of the Fundwi program into foreign and counterpart budgets has no rationale now that the rupiah parity fairly accurately reflects the scarcity of foreign exchange.

Formulation of separate development programs each with its own budget has led to misallocation of finance between projects and over time. Projects on the Fundwi list have had very much freer access to capital and skills than other very important projects in the Pelita and Task Forces programs.⁸ And some Fundwi projects have experienced a superfluity of capital and skills through the program although resources may not be available to maintain them in future years.

With the winding up of Fundwi disbursements, international aid to the province is likely to continue in other forms. In 1969, the Netherlands made approximately \$5 million available to the Asian Development Bank, to finance investments in Irian Jaya. The UNDP has committed itself to some post-Fundwi expenditures, as has the Canadian government under a bilateral aid program. More recently it was reported that the Indonesian government had asked Australia to grant special assistance to Irian Jaya with the aim of speeding up development and thereby minimising tensions with wealthier Papua New Guinea.⁹

The main goals of the provincial and central governments have been

⁸ See the discussion in chapter 3 of the vocational training centre at Jayapura and in chapter 8 of the Hamadi timber project.

⁹ Michael Richardson, 'Australia asked to help Irian Jaya', *Financial Review*, 8 March 1973, p. 1; also Chris Manning, 'Case against Irian Jaya aid', *Canberra Times*, 2 June 1973.

Table 16 Fundwi Development Program: Projects and Budget allocations

Project	Budget allocations					Counterpart (Rp.m.)	
	United Nations (\$000) ^a						
	Description of project activities	Total	Ex- perts	Fellow- ships	Equip- ment	Sub- contracts	Total esti- mated cost (cash & kind)
Infrastructure							
Air transportation: ^b provision of 3 Twin Otter aircraft, equipment, repair of existing aircraft and general assistance	4399 ^c	301	95	2616	—	7141	1790
Coastal and river transportation: provision of coasters, motor barges and service vehicles; repair of ships, slipways and ports	5899	550	53	3203	1152	2777	1310
Land transportation: equipment for rehabilitation of Jayapura-Sentani road, passenger buses and trucks provided for towns, equipment for rehabilitation of workshops	1404	278	24	890	—	1481	576
Electricity: rehabilitation of diesel power stations in major towns	1138	77	31	546	133	122	113
Telecommunications: main work in rehabilitation of Jakarta telephone and telegraph systems and repairs elsewhere	1281	267	25	414	—	733	230
Meteorology: rehabilitation of existing meteorological stations and establishment of 2 agricultural meteorological stations	203	27	—	93	7.6	212	— ^d
Primary Industry							
Forestry: (i) main efforts in establishment of sawmill at Hamadi near Jayapura and minor research on copal and resin resources;	1148	67	23	471	267	307	189
(ii) research into prospect of forest industries in Irian Jaya and forestry projects in Warsamson Valley for Irian Jaya Forest Industries Development Corp.; rest of project abandoned and funds allocated to other projects	162						
Marine fisheries: research into tuna and skipjack resources, assistance in setting up pole and line fishing enterprise and finance for building and equipment for fishing school at Sorong	1669	150	12	167	1159	239	113
Inland fisheries: management and demonstration at government hatcheries, provision of fish for Lake Sentani and inland lakes and rivers	184	76	—	83	—	90	62

^a Includes reallocation of \$2,747,000 at program review, July 1971.^b An additional \$175,000 and \$80,000 was granted by the Canadian and British governments.^c \$1 million from Review meeting in 1971 not yet allocated to different uses.^d Included in Air Communication allocation.

Source: Fundwi, Jayapura, 1972.

Table 16 Fundwi Development Program: Projects and Budget allocations (continued)

Project	Budget allocations					Counterpart (Rp.m.)	
	United Nations (\$000)					Total estimated cost (cash & kind)	Cash disbursements (DIP 1969-72)
Description of project activities	Total	Ex-perts	Fellow-ships	Equip-ment	Sub-contracts		
<i>Primary Industry (continued)</i>							
Agriculture: seed trials and distribution, technical reports (soil market surveys)	585	229	54	201	5	326	105
Animal husbandry: rehabilitation and expansion of veterinary, quarantine and slaughter facilities	281	109	33	98	—		64
Asmat handicrafts: stimulation of traditional carvings through organising purchases and markets for Asmat art	131	84	2.6	4	—		5
Brick and tile manufacture: courses and feasibility studies on brick and tile manufacture to replace imported sources of building materials	58	58	—	—	—	—	—
Refrigerator and cold storage: survey of possibility of refrigeration and cold storage fish	0.8	0.8	—	—	—	—	—
<i>Human resources</i>							
Industrial vocational training centre: vocational training centres with modern equipment in Jayapura and Manokwari	1561	800	42	457	—	278	298
Education planning and administration: advice on educational planning to administration	183	116	—	4	—	—	—
School building and model schools: model school at Wamena	42	31	—	49	—	9	—
Teacher training and technical and secondary education: construction of new teachers' college, provision of audio visual aids and improvement of curricula	610	230	89.6	208	—	448	244
University: provision of books and equipment and assistance to anthropology institute	236	—	—	50	152	20	21
Highlands education: advice on approach to education in the highlands	65	48	—	8	—	—	—
<i>Other</i>							
Community development: courses and teaching materials for community development programs	105	72	7	11	—	—	—
Health: equipment and campaigns against malaria, improvement of public health, nursing education and training; control programs and public health advice	615	72	79	321	—	335	186
Public administration: fellowships to development administrators	5	—	5	—	—	—	—
Irian Jaya Joint Development Corporation	4000					1660	

stated frequently, so it is possible to make some assessment of the efficiency of policies. The governments have aimed at integration of the province into the wider Indonesian economy, at 'raising' the modes and standard of living of the Irian-born to those of other Indonesians and at increasing provincial economic activity and the province's contribution to national economic development.¹⁰ These goals have been attended by the broader objectives of spreading national ideology and language and extending Indonesian administration within the province.

The general economic reforms in the late 1960s, including removal of public utility, transport and consumer goods subsidies, made a major contribution towards more efficient resource allocation. But the rice subsidy remains a very large drain on the budget. The subsidy causes provincial resources to be allocated inefficiently: high cost rice is substituted for low cost foodstuffs and rice production is discouraged in the few locations where it is economically feasible. The subsidy's welfare effects are skewed against the Irian-born, whose taste for rice is less well developed. Abolition of the rice subsidy would yield large economic benefits even if compensating public service salary increases were required. Abolition of the subsidy would make migration to Irian Jaya less attractive, but subsidised consumption at a new location seems an inefficient way of raising the welfare of poor persons from other provinces.

It is difficult to quarrel with the emphasis of the major development programs. Improvement in transport and communications was necessary merely to provide access to information required for more sophisticated planning. Rehabilitation of the communications infrastructure was also a prior requirement for any village development effort. Investment has been concentrated on restoration of former Dutch facilities. However, it is now clear that the old transport and communications structures are not always suited to the very new economy that is developing and a new approach is required. Communications have improved sufficiently to allow effective expenditure on village welfare. But villagers' incomes have fallen in many areas, despite Indonesian aims, and projects contributing directly to village welfare have received low priority in allocation of funds. These and other important planning questions will be discussed further.

¹⁰ See especially Direktorat Irian Barat, *Irian Jaya Development Plan*, Jakarta, 1967, pp. 1-16; Acub Zainal, *Operation Koteka - the community development of the inland areas of Irian Jaya, 1971/73*, Jayapura, 1971; and *Nota Keuangan dan Rantjangan Anggaran Pendapatan dan Belandja Propinsi Irian Barat 1972/73* [Financial Note and West Irian Budget 1972/73], Jayapura, 1972.

6 Transport, Communications and Trade

Fundamental technological factors constrain the growth of incomes in Irian Jaya. The development problem in Irian Jaya is dominated by the small scale of human settlements and the high cost of small-scale transport and communications. The division of labour depends on the extent of the market and trade between scattered villages requires long walks over difficult terrain for a small enlargement of the market.

A new division of labour has become possible with the establishment of links with the world market. Once a few beachheads of the international economy were established, short-distance trade with the ports could link adjacent, coastal villages into the world system. But where inland villages are separated from the ports by mountains and rivers the small scale of potential trade has made the cost of land transport prohibitive. Rivers in Irian Jaya, unlike Kalimantan, can play only a limited role in linking inland areas to the coast. Economies of scale are less important in transport by aircraft, but unit air transport costs are high, so that isolated villages can participate in the national and international economy only through trade in high-value-to-weight commodities.

Improvement in village welfare is possible without trade where services and high-value commodities are made available by gifts from outside the village. Where external aid supports a commitment to social and economic change, transport and communications must play a key role in the process. Costs are high and efficient supply of these services is a major planning problem.

Communications for administration

Extensive air and telecommunications networks are crucial to effective government administration in Irian Jaya. Indonesian policy has given high priority to development of the infrastructure that is necessary to support province-wide administration. The focus has been on restoration of the telecommunications and transport systems that existed in colonial times but deteriorated in the first seven years of Indonesian administration.

Between 1962 and 1969 there was almost no maintenance of the telecommunications system. The Indonesian systems were themselves desperately short of qualified technicians, and unable to handle the additional burden. A direct telegraph link with Jakarta was established, but it was unreliable and in 1971 it cut out completely. The telegraph link with Sydney cut out in about 1970 and other international links were chronically unreliable. The links between major centres in Irian Jaya were operational only about half the time despite a large government subsidy.¹ Rehabilitation awaited the onset of the Fundwi program. The first foreign expert arrived in late 1968 and three more through 1969. For over a year efforts were directed at stemming the decline in services. Since then, this project has proved to be one of the more successful of the Fundwi efforts. However, the urgency of rehabilitation has combined with a chronic scarcity of technical skills to prevent development of an efficient, integrated provincial telecommunications system.

The absence of skilled personnel has been a constant problem. Under the Fundwi program, the technical institute in Bandung undertook to train thirty technicians from the province each year. In the first year of the scheme, however, only ten applicants were considered sufficiently well qualified to attend the course. Indonesian technicians born outside the province have been difficult to retain in Irian Jaya. The number of trainees who have become useful operatives is very small and there is a danger that the private telecommunications systems being established by the mining companies will cream the very small pool of technicians. Offering salaries two to three times the national telecommunications company (Perumtel) rate, Freeport Indonesia and Pacific Nickel have already attracted several of the best local staff.

The Fundwi project has proceeded in two stages. The first telecommunications project plan, prepared in April 1970, aimed at restoration of equipment already in the province. But it soon became apparent that much equipment was more cheaply replaced than repaired and changes in international practices required other improvements if the province was to be linked with world systems. More funds were available for new equipment from June 1971 and a more comprehensive attempt to rebuild the system could be made. Telephone services have not been a major concern of the project to date and work has been confined to restoring the old connections.

By the time of completion of the project, telegraphic systems will have more modern equipment than in Dutch times although only thirteen stations are serviced. Jayapura operates as a leader station. Biak, Manokwari, Sorong, Fak-Fak and Merauke are to be connected by telephone and teleprinter.

¹ IBRp 5 million in 1969 (approximately Rp 50 million).

In late 1972 work had been completed except at Merauke, where transport difficulties had delayed installation. Seven other centres are to be connected into the provincial system by single-side band telephone and morse.

The small total demand for telecommunications services has been a cause of high costs, reflected in high charges. Small volumes have confined the province to old shortwave techniques. This single channel equipment is very much more expensive than well utilised multi-channel equipment. The Fundwi project manager estimated that a five-fold increase in demand could bring costs down to average Indonesian levels. It is thus particularly unfortunate that the large Freeport and Pacific Nickel telecommunications centres are not integrated into the provincial network. Supply of these two projects alone may have made adoption of multi-channel equipment economic, allowing costs to fall with future increases in demand. Freeport Indonesia's installation, costing around \$2 million, is so different from the provincial system that integration will not be possible without scrapping this investment. The Pacific Nickel Company has offered to finance several million dollars expansion of the Perumtel network. The telecommunications company has felt doubtful of its administrative and technical ability to maintain an enlarged system, but there is some prospect that current negotiations with Pacific Nickel will lead to use of compatible equipment and facilitate future integration.

The Fundwi project manager advised us that introduction of microwave, multi-channel international connections via Jakarta could cost a total of \$7-8 million. An investment as small as \$10,000 could provide a microwave link with Vanimo in Papua New Guinea and hence with the world-wide system that includes Jakarta. However, there may be political objections to reliance on the link via Papua New Guinea.

Air transport is more important for government administration in Irian Jaya than in any other province of Indonesia. There are about 113 airstrips throughout the province, adjacent to most populated areas. Over 60 per cent of these are grass strips that are able to receive only Cessnas and other small craft. Fourteen strips can take DC3s, while most of the remainder can receive craft in the Twin Otter class.

Of the larger airstrips, all but the Freeport strip service the main urban centres and are maintained by the Directorate-General of Air Communications. Most of the larger strips, including those at Merauke, Sentani (Jayapura), Biak, Sorong and Kaimana, were constructed in wartime. Despite slight maintenance, most remained serviceable through the 1960s and the Fundwi program has been directed at stemming further deterioration and at improvement of

safety equipment and procedures. Fak-Fak remains the only *kabupaten* capital without an airstrip, early Fundwi proposals having been dropped for lack of funds. There has been a continuing expansion in the number of small, Cessna strips, which are usually built and maintained by the missions with the help of village people.

In 1963 Merpati Nusantara replaced NNGLM as the government appointed commercial airline. At first it attempted to maintain most of NNGLM's schedules, but services were very poor by the time of the visit of the Fundwi consultant in transportation economics in 1967. The airline's principal assets in Irian Jaya, three DC3s, were repeatedly grounded awaiting spare parts. There were severe problems of employee morale and, owing to irregular operations and low fares, financial difficulties persisted. The low fares made Merpati dependent on government subsidies which were not always forthcoming. The mission groups had continued to operate at their former levels and were the province's major carriers, providing unscheduled services to most airstrips as demand and limited capacity allowed.

Much of the Fundwi air communications effort has gone into strengthening Merpati's Irian Jaya operations. Early management support included pressure for the passenger fare rise in 1970. A number of Merpati staff were granted fellowships in flying, technical and management training. Most of the \$2.4 million in equipment, spares and materials distributed by Fundwi to September 1972 went to Merpati: three new Twin Otter aircraft with spare parts for three years plus spares for older aircraft. This expanded the Merpati fleet to four DC3s and five Twin Otters. Under bilateral agreement signed in July 1972, directed at upgrading civil aviation in the whole of Indonesia, the Canadian International Development Agency (CIDA) granted a concessional loan to Merpati for the purchase of two more Twin Otters. In addition CIDA is to provide a management adviser to assist Merpati for a period of two years.

The quality of air services has improved markedly. Twice weekly or more frequent flights connect Biak, Manokwari, Sorong, Jayapura, Merauke and Wamena. Biak is the maintenance and depot centre and receives daily flights from Surabaya and Ujung Pandang. Merpati and Trans Australia Airlines jointly maintain a weekly service into Papua New Guinea. Merpati flew 7950 flight hours in 1971, more than tripling the 1967 total. In 1971 Merpati carried 48,000 passengers and flew more hours than the major mission operator, the Mission Aviation Fellowship, for the first time.²

Travel by government officials comprises 85 per cent of the demand for

² Merpati Nusantara Airlines, Biak; and Biro Sensus dan Statistik, Irian Barat dalam *Angka Tahun* 1970.

Merpati services, and freight runs to inland areas from Nabire, Jayapura and Manokwari are primarily for delivery of consumption goods to civil servants. A Hercules is chartered monthly to drop rice and other supplies to government officials in Wamena.

Air transport into smaller centres including the whole of the south coast west of Merauke and most of the central highlands still remains dependent on unscheduled mission flights. The missions' Cessna aircraft carry large quantities of non-mission personnel and cargo. One mission group estimates that two-thirds of all passengers and one-third of all goods carried by their aircraft are for outside persons or organisations.

Telecommunications and air transport reach only a limited number of centres and contact with many people depends on use of traditional communication networks. Webs of footpaths cross all inhabited areas and are linked by tracks over the least habitable country. On slippery and steep sections steps are carved into rock or paths are reinforced with timber. The main paths are clearly marked, crossing streams by log bridges and rivers by wood and vine suspension bridges. In the swamp and river areas, the canoe remains an efficient means of linking the villages to the outposts of the sophisticated communications systems. In the foreseeable future, half the province's indigenous population will remain accessible to administration only by foot and canoe. From some accounts the importance of these simple modes of transport is not fully appreciated by some departmental field staff.

In some areas, more efficient communications may be achieved through modification of traditional practices. The canoe with a robust outboard motor can provide cheaper personal transport than larger boats built to modern specifications. On some mountain tracks, beasts of burden like the donkey could be profitably introduced. Bullock carts have long been used by Javanese settlers in the flat country of the southeast: the practice has been followed by some local villagers and there is room for its extension. The integration of the post office, the airstrip and the jetty with the simpler communications systems presents an important challenge to planners in Irian Jaya.

Trade by sea and land

Despite the switch to supplies from other parts of Indonesia described in chapter 4, imports have continued to grow from the very low levels to which they fell in the mid-1960s (see Table 3). The construction of the copper mine and exploration activities of other enclave investors have expanded

rapidly the value of imports. In 1971 the volume of imports (300,000 tons) was almost double the 1970 level, 161,000 tons. The value of imports at \$30 million exceeded colonial levels for the first time.

There has been a change in the relative importance of Irian Jaya's various international trading partners (see Table 17). Imports from the Netherlands have declined markedly since 1961 and accounted for only 4 per cent of total imports in 1971. Supplies have come mainly from Japan, Singapore, Hong Kong, and the United States, whose very high share in 1971 is entirely a reflection of her importance as a supplier to the copper project. Singapore and Hong Kong have replaced the Netherlands as the principal markets for village exports and, since crude petroleum with a high gasoline content was discovered in Australia, Japan has become the main oil customer. Japan is also the market for prawns, the largest export in 1972, and is likely to be the main buyer for tuna, non-ferrous metal ores and timber.

Reorientation of international shipping to Irian Jaya has accompanied the change in the direction of trade. Decline in the frequency of international shipping services following the departure of the Dutch contributed to the sharp fall in foreign trade levels in the mid-1960s.³ Today, international services are provided by three to five ships a month from Singapore and Hong Kong to the major northern ports. There are less frequent calls from Europe and Australia to Jayapura and, with special inducements, to other northern ports.

The poor quality of local shipping has also affected adversely the level of village exports, and the decline has been magnified by falling prices (see Table 4). Although most of the Dutch coastal fleet survived the transfer of

Table 17 Irian Jaya's trading partners: percentage shares in exports and imports by value, 1961-71

Country	Share of exports				Share of imports			
	1961	1965	1969	1971	1961	1965	1969	1971
Netherlands	23	19	3	0	48	22	11	4
Singapore	16	0	23	29	19	0	35	12
Japan	34	50	48	64	2	20	16	19
Hong Kong	0	10	10	6	3	22	15	5
Australia	14	7	0	0	8	15	6	11
United States	0	0	0	0	1	1	1	45

Sources: Biro Sensus dan Statistik, *Irian Barat Dalam Angka Tahun 1970*; *Report on Netherlands New Guinea, 1961*; Records of Kepala Inspeksi Bea dan Cukai, Jayapura. (For some known flaws in 1971 data, see note to Table 2.)

³ The situation was most serious 1963-6 when the trading link with Singapore was broken during confrontation.

sovereignty it was decimated by mechanical breakdowns and by export of parts to other Indonesian provinces during the currency problems of the mid-1960s. Subsidies were large enough to offset the high cost of operating on a regular basis only to the four largest ports, Sorong, Manokwari, Biak and Jayapura. Minor ports, including the river ports of the Merauke *kabupaten*, ceased to have access to any shipping services.

There has been some improvement since the mid-1960s but many problems still remain. Although sea transport has been given first priority in the Fundwi development plan the results so far have been limited. Improvement of port facilities had barely begun in October 1972. Some wharves were in serious disrepair and the ship repair program was far behind the original schedule. The coastal fleet had expanded to fifteen coasters totalling 3500 tons and eleven barges totalling 1610 tons after Fundwi provision of two vessels each to Pelni and PT Jayawijaya on easy terms⁴ and a presidential gift of five small vessels to PT Jayawijaya.

Under-capacity does not seem to have been a problem with only 50 per cent of cargo capacity being utilised. Early ambitions to restore the full range of former Dutch ports of call have been abandoned for the present and it has not even been possible to maintain regular calls at ten ports. Other ports are visited subject to inducement. The absence of regular shipping is a major limitation on trade from minor coastal centres.

Transport of fuels requires special discussion since the high cost of kerosene, aviation fuel and especially diesel fuel is a major contributor to high costs of electricity, air transport and other services. PN Pertamina maintains bulk depots for diesel fuel at Jayapura, Sorong and Biak and for aviation fuel at Biak. Petroleum is distributed in drums to other ports. Vessels of 150 tons are chartered to carry drums to the southern ports, at an average cost of almost 20 Rp per litre including delays and backloading. Drum depots in Manokwari, Fak-Fak and Merauke provide supplies for smaller ports. Because of low total demand, from three to six months' stocks are commonly held at Fak-Fak and Merauke. Diesel oil costs would fall dramatically if demand in the south rose to levels that justified calls by larger tankers. Since Freeport alone will require at least 2000 kilolitres per month of high speed diesel oil there are likely to be important economies in the establishment of at least one south coast installation.⁵

⁴ The companies are to pay the Joint Development Foundation for the vessels over fourteen years without interest.

⁵ Pertamina personnel associated with bulk transport have suggested that 500-900 ton bulk barges hauled by tugs could be used on the Irian Jaya coast to service such installation.

The deterioration of roads connecting some village areas with the coast further contributed to the decline of village exports in the past decade and prevented the fruition of some Dutch agricultural export projects. The roads from Teminabuan (60 kilometres), Manokwari (40 kilometres), and Jayapura (65 kilometres) to nearby cocoa plantations have all fallen into disrepair and at best can be passed only by four-wheel drive vehicles. New roads, mostly built under the central government *kabupaten* scheme, have concentrated on linking towns to prospective vegetable-producing areas. The most successful of these appears to have been the 40 kilometre road linking the town of Biak to Korim on the north coast of the island. Freeport has built a 120 kilometre road to the south coast at Amapere.

In general, however, roads can play only a relatively minor role in Irian aya development. Large areas of swamp, especially in the south, and a precipitous terrain in other regions make road construction impossible or extremely costly. Poor agricultural land in all but a few areas, the small size of urban population and dim prospects for village exports all suggest the need for a critical approach to major road investments.

The recent completion of a 45-kilometre road from Wamena to Pyramide in the central highlands with assistance from village volunteers confirms the lesson of the Papua New Guinea highlands, that construction of simple, low-cost village road networks is possible.⁶ Such development in a heavily populated area like the Baliem Valley can raise considerably the income gains associated with a given level of external trade or subsidy by facilitating internal trade.⁷

There appears little prospect that a road linking the highlands with the coast will be economically justifiable in the near future. Irian Jaya's rugged natural environment would make a highlands-coast road more costly than in Papua New Guinea.⁸ It is doubtful whether the national or provincial budgets could justify the very large investment that would be required to bring relatively small economic and social benefit.⁹ There is no present

⁶ The Wamena-Pyramide road was estimated to cost approximately Rp 140,000 (approximately \$300) per kilometre in money; three small bridges had still to be constructed to complete the road in mid-1972.

⁷ Again costs need to be carefully scrutinised and the welfare benefits compared with those which may derive from alternative investments.

⁸ For estimates of the cost of various new roads to the highlands of Papua New Guinea see UNDP, *Transport Survey of the Territories of Papua and New Guinea*, 1969, chapter 8.

⁹ Built to sophisticated specifications a 100 kilometre road from Lake Paniai to Nabire might cost \$50-100 million and a 200-300 kilometre road to Jayapura \$100-200 million. A dirt road able to carry only four-wheel drive traffic could be built much more cheaply.

indication that any of the mining companies are preparing to build such a road although current exploration keeps future possibilities open.

However some growth in exports from inland areas could be maintained through better utilisation of capacity on returning aircraft. At present there is considerable imbalance between the size of cargoes airfreighted into and from inland strips. Virtually no cargo is carried from Lake Paniai area to Nabire and planes carrying passengers on these routes maintain a load factor of only 10-20 per cent. Backloading cargo rates from Wamena have been reduced by 50 per cent to IBRp 2.50 per kilo. Return flights now average about 70 per cent of capacity, of which 20 per cent comprises air cargo.

Because transport and communications over long distances between small centres are characterised by important economies of scale, the cost of future services depends on predicting accurately and developing systems to meet the growth in demand. The cost of transport and communications has a major bearing on the profitability of many industries, so that the planning of industries needs to be undertaken concurrently with planning of infrastructure. Moreover, very substantial cost saving can be achieved through the integration of public communications systems with those set up by the large enclave investors. Some thought has been given to the possibility of developing an integrated telecommunications network over the next twenty years. Long-term planning of telecommunications and transport industries, especially sea communications, would bring considerable benefits. Certainly it is necessary for planners to look beyond the simple goal of restoration of services available in colonial times: this goal has allowed an early start on projects to improve communications and transport infrastructure, but is poorly suited to the very different economy that is emerging.

7 The Towns

The towns of Irian Jaya have grown very rapidly in recent years (see Table 18). Rising government expenditures have been the main source of growth, although provision of services for major enclave investments has been very important in Sorong. Accompanying growth in employment generated by government expenditures, development of labour-intensive service and small-scale manufacturing industries has increased considerably the ratio of non-official to official employment.

Table 18 Populations of five major towns, 1961 and 1971

	1961	1971 ^a
Jayapura	14,500 ^a	35,000
Manokwari	11,500	17,000
Biak	10,600	24,000
Merauke	6100	10,000
Sorong	5900	20,000

^a Estimates.

Sources: *Report on Netherlands New Guinea* for the year 1961. For 1971 the figures for Jayapura and Biak are taken directly from Kantor Sensus dan Statistik, Propinsi Irian Barat, *Sensus Penduduk 1971*. The estimates for Manokwari and Sorong are imputed from the *Distrik* data published in *Sensus Penduduk 1971* in conjunction with more detailed information in the mimeoed publication, Kepala Kantor Sensus dan Statistik, *Data² Umum Penduduk Propinsi Irian Barat, Jayapura, 1969*. The Merauke estimate is derived from census data and discussions with residents and officials. The Jayapura figure is slightly misleading, since it excludes nearly 10,000 persons in the nearby urban centre of Abepura.

As suggested in chapter 4, a large proportion of immigrants have arrived without sponsorship from South Sulawesi and other parts of eastern Indonesia. Although the settlers have come mainly to provide services for public servants or to work on government development projects, the proportion of the urban population directly employed by the government is not large. The proportion is highest in Jayapura where the 4600 civil servants, nearly one-third of the provincial total, accounted for over 13 per cent of the total

urban population. By contrast there were only 1000 government employees in each of the *kabupaten* of Biak, Merauke, Sorong and Manokwari and closer to 500 in the other *kabupaten*. Official figures on non-government employment exclude many important activities and province-wide data is of little value due to serious inconsistencies.

In the towns of the north and west the 'newcomers' (*pendatang*) controlled the greatest part of small-scale trade and urban transport. They held most of the places in the urban markets. Newcomers also held the majority of labouring and artisan jobs in road construction and building. The migrants have been responsible for development of many new labour-intensive economic activities: pit-sawn production of timber, tailoring, cigarette sales from small stalls and other new urban services. Pit-sawn timber has provided strong competition for the machine sawmills and, despite Forestry Department attempts to control this activity, accounts for the major part of the urban timber supply.¹ Similarly, the night markets in Jayapura, Biak and Sorong and the stalls have reduced the turnover of several established import-oriented stores run by Chinese.

The immigrants did not occupy a high proportion of labouring jobs in the towns of the south, as might be expected from the slower growth in demand for wage labour and much lower wage rates in these areas. Instead they were concentrated in employment with an entrepreneurial content; small-scale trading, commercial fishing and pit-sawn production of timber. In these activities there seemed to be a greater tendency to employ Irianese labourers than in the northern towns. Owing to the limited opportunities for wage labour in the highlands much smaller numbers of newcomers had taken up similar positions. In Wamena they ran the small number of kiosks selling consumer goods.

Manufacturing employment has never been large. The total has probably increased since 1962 and its composition has changed considerably. Small establishments produced bread, biscuits, coconut oil, soap and lemonade under the Dutch and continued production through the scarcities of the mid-1960s. Since then, competition from inter-island and international imports, rising fuel and electricity costs and shortages of raw materials have created severe problems for these firms.²

¹ The forestry service owns sawmills in Jayapura, Sorong, Nabire and Serui. Through its control of forest exploitation licences it is able to restrict production of the pit-sawn operators when competition with its own mills becomes too strong. The management of the Fundwi sawmill near Jayapura has also supported restrictions on production of hand-sawn timber.

² PT Ramoi, a relatively large import-export and retail firm in Sorong, has ceased

But declines in output and employment in these activities have been compensated by increased employment in other manufacturing, especially building materials and clothes. Brick and tile production expanded several fold between 1967 and 1972, encouraged by the Department of Small Industries, the Fundwi small industries expert and, in Merauke and the highlands, the Catholic Mission. Expansion of brick production has been especially important in Biak, Nabire, Manokwari and Serui. A co-operative opened by the Mission at Pikke has been supplying bricks and lime to Wamena and operating at a profit. The Pacific Nickel contractors are said to favour house construction with clay bricks and this could lead to vastly increased brick production in the vicinity of its operations.

Casual observation suggests that unemployment is probably less a problem in Jayapura, Manokwari and Sorong than in towns in other parts of Indonesia. The number of unemployed registered at the manpower offices in April 1972 was relatively greater in Biak (900) with its overpopulated hinterland, Merauke (over 300) and Fak-Fak (over 300) than in other towns.

A considerable proportion of development expenditure has aimed directly at improvement of urban services. The latter expenditure has had a very uneven effect, with very substantial improvements in the quality of many services in Jayapura, significant changes in Biak, Manokwari and Sorong and little visible effect in the towns of the south. Provision of basic facilities such as roads, electricity and water is only just beginning in the highlands towns.

After seven years of deterioration roads have been upgraded in all northern towns since 1969. Public and private passenger transport services now provide regular links within the northern towns. Fundwi supplied ten buses to the provincial government for use in Jayapura and one each to Biak and Merauke. Buses cater mainly for school children and other regular travellers at peak hours in Jayapura. A more important development in Jayapura, Biak, Manokwari and Sorong is the recent provision of transport services by privately owned mini-buses and kombis which are run by immigrants from Maluku and Sulawesi and provide more frequent and flexible services. They numbered thirty-six in Sorong in mid-1972 and several times this number were operating in Jayapura.

Urban electricity supply has been given high priority in both the Fundwi and Pelita programs. Under the Fundwi program over \$1 million plus Rp 122

production of bread, noodles and lemonade. Government-run bread, coconut oil and lemonade factories in Biak, and lemonade, noodles and soya sauce producers in Manokwari have met similar fates.

million in counterpart funds have been allocated for the repair of twelve of the fourteen existing power stations and for provision of new generators for Serui and Nabire. The Pelita program provides Rp 350 million for establishing diesel stations at Sarmi, Sentani, Jayapura and Merauke and for transmission equipment.

As a result of these efforts, generation of electricity in the province by the national electricity authority (PLN XV) rose by 25 per cent to 7.5 million kilowatt hours in 1971, exceeding levels in the early 1960s for the first time. Jayapura accounted for over 40 per cent of the total and Sorong and Biak for a further 40 per cent. But one-third of the 9800 kilowatt total generating capacity was still out of order in January 1972. By 1972 electricity services covered 24 hours in the major towns, but there was no surplus capacity to allow repairs and maintenance.³ When a diesel generator broke down in Jayapura in the second half of 1972 an alternating day-on day-off supply schedule was introduced. Unreliability of supplies has caused some consumers to establish private generators. Further improvements are necessary if PLN supplies are to be relied upon for large-scale refrigeration plants such as those required for major fish processing operations in Sorong or Jayapura.

The Asian Development Bank has chosen electricity as a possible field for investment and its consultants have surveyed supply and market factors in Jayapura and Biak. They suggest that Jayapura requires an additional 2000 kilowatt capacity by 1974, and that a further 8000 kilowatts required by 1981 could be supplied from hydro-electric plants on Lake Sentani. Biak is said to need an additional 1500 kilowatts by 1981 which could be provided by rehabilitated machines and two new 500 kilowatt diesel plants.⁴

There is little reliable data on other urban services. Housing presents serious problems in Jayapura, where shortage of accommodation for officials and technicians has held up some programs and where hastily constructed shanties house a large part of the immigrant population. Water supply is unreliable in several towns⁵ and growth in the town of Merauke will be choked unless large investments in water supply are made. Fundwi has undertaken to restore old diesel water pumps at Sorong, Merauke and Kaimana

³ PLN Unit XV Jayapura, *Kelistrikan di Irian Barat*, May 1972.

⁴ The ADB has decided recently to allocate \$5 million to these projects, commencing in April 1973. The ADB also suggested that the PLN could co-operate to provide an additional 120 kilowatt capacity for the PKN timber company by 1977. See Tata Consulting Engineers, *Laporan Untuk ADB* (translation), Bombay, Feb. 1972.

⁵ Lack of regular water supplies was one of the major reasons for the closing down of a large lemonade factory in Sorong.

and Pelita has provided Rp 120.5 million for rehabilitation of reticulation pipes, mainly in Jayapura. Pelita also provides for expenditure of Rp 57 million on town drainage in Merauke, Jayapura, Sorong and Fak-Fak.

Of the established towns, only Merauke appears to have a hinterland capable of supporting large, export-orientated agricultural development. The rich agricultural lands in the Manokwari hinterland are too small to support agricultural projects of a significant size. But to be successful, development of Merauke's hinterland would require simultaneous investments in harbour facilities and other services in Merauke, in international and river shipping, in communications, and in agricultural and livestock production on the banks of the Digul and Maro Rivers. The total investment required would be large and the co-ordination problems complex.

Table 19 Prices of selected commodities in Irian Jaya and other Indonesian towns, March-April 1972^a (Rp)

A. Javanese Cities and Outer Island Towns

	<i>Javanese Cities</i>		<i>Outer Island Towns</i>	
	Jogjakarta	Jakarta	Menado	Banjarmasin
Wheat flour (kg)	60-5	69	58	60-4
Rice (kg)	30-5	31-4	40-3	40-6
Salt fish (kg)	130-40	202	175-200	250-75
Sugar (kg)	90-975	98-106	110-15	100-3
Salt (piece)	15	15	20	15-18
Kerosene (botol)	17	17-25	22	18-22
Cement (sack)	935-1017 ^c	625-50 ^b	831-850 ^b	1000-1500 ^c

B. Irian Jaya Towns

	<i>North Coast</i>		<i>South Coast</i>	<i>Highlands</i>
	Jayapura	Sorong	Merauke	Wamena
Wheat flour (kg)	n.a.	100	113	n.a.
Rice (kg)	38	38	38	38
Salt fish (kg)	250-300	245-378	283	n.a.
Sugar (kg)	133	120	n.a.	400
Salt (piece)	38	n.a.	n.a.	100
Kerosene (botol)	28	26	47	n.a.
Cement (sack)	1417 ^c	1293 ^b	n.a.	3000+

^a Adjustments have been made for difference of quality.

^b Cement ex Asano.

^c Cement ex Gresik.

Sources: BPS, *Indikator Ekonomi*, April-May 1972; Perwakilan Perdagangan di Biak, Merauke, Jayapura, *Daftar Harga Pasar*, April-May 1972. Information for Wamena was gained from officials and shopkeepers.

The high administrative costs would work against the success of such a program, but the extreme poverty of Merauke and its hinterland provides an additional reason for exploring the possibilities.

There is little trade between the towns and so little specialisation in production for a provincial market. High transport costs and poor communications cause considerable variation in prices within the province and in relation to other Indonesian provinces.

Table 20 Prices of selected commodities in Jakarta and Irian Jaya towns, April-May 1972 (Rp)

Commodity	Irian Jaya				
	Jakarta	North Coast		South Coast	Highlands
		Jayapura	Sorong	Merauke	Wamena
Beef (kg)	378-80	945	756	478	n.a.
Pork (kg)	n.a.	756	662	n.a.	n.a.
Sardines (tin)	186-9	133	140	151	250
Tobacco (pkt)	n.a.	125-33	150	161	200
Kretek	55	70	100	100	100
cigarettes (pkt) ^a					
Hens' eggs	17-18	54-7	28	47	n.a.
Beer	150-200 ^b	100 ^c	100 ^c	n.a.	200 ^c

^a Bentoel.

^b Bottle (local).

^c Can (imported).

Sources: As for Table 19.

Tables 19 and 20 show that Indonesian-made consumer and producer goods – fish, salt, kerosene, kretek cigarettes and cement – are all cheaper in Java than in other outer islands, and are most expensive in Irian Jaya. But some imported goods (e.g. canned fish and beer) are cheaper in Irian Jaya owing to its lower tariff level. Rice was slightly cheaper in Java till mid-1972, with the subsidy merely covering the high transport costs to all Irian Jaya centres. But since then the Java price has risen well above the subsidised Irian Jaya price. Prices were lowest in Sorong among Irian Jaya ports and most prices were higher in the south than in the northern ports. But meat was cheaper in Merauke, where the availability of fresh deer meat kept prices at about Jakarta levels. The high cost of air freight makes all commodities except kretek cigarettes and subsidised rice substantially more expensive in the highlands.

Price variations among Irian Jaya urban centres reflect the strong, natural impediments to intra-provincial trade, especially between the highlands and the coast and between the north and south coasts. Nevertheless, intra-provincial integration, especially across the north, should progress with growth of the towns: increased trade volumes lower unit transport costs and allow development of new industries supplying provincial markets. The urban growth that would support diversification of the town economies into industries supplying provincial markets depends initially on continued growth in government expenditure or in processing and servicing for new export industries. Several towns could become processing centres for fish, timber and other raw materials and all northern towns are likely to become suppliers of materials to the Gag Island nickel project. Sorong will be transformed by growth associated with adjacent resource developments into perhaps the largest town in eastern Indonesia. But these are future prospects, and the following chapter underlines the limited nature of recent resource investments' contributions to the provincial economy.

8 The Enclaves

Irian Jaya is not richly endowed with agricultural land and transport costs are very high, so that the province has been by-passed by the expansion of capitalist agriculture that has occurred in other parts of the tropical world. But world forest, mineral and fish resources have been under severe pressure and rising prices have made production profitable in difficult locations like Irian Jaya. These market factors have combined with reduction of political uncertainty to spur the growth of new resource-based industries.

Oil and mining

Despite the cessation of exploration by the Nederlandsch Nieuw Guinee Petroleum Maatschappij several years before the transfer of sovereignty and the decline in annual production to less than 500,000 barrels per annum, considerable recent interest has been shown in oil exploration and the early drilling has produced promising results. A consortium led by Petromer Trend began drilling in the Manokwari-Sorong region in September 1972 following an extensive geophysical survey. Their first well yielded 1680 barrels per day and a subsequent strike from a well yielding 21,000 suggests that a rich field may have been discovered.¹ Several other companies began exploration over a wide area in Irian Jaya in 1972 and 1973 and one further strike has been made close to an old Seram field.²

Little is known about the geology of much of the province. However, several promising non-ferrous mineral prospects have been discovered allowing two large projects to begin. In its 1968 annual report the Freeport Sulphur Company announced that its subsidiary Freeport Indonesia had

¹ Antara Financial and Economic News, 18 October 1972, p. 3; 3 November 1972, p. 1; 12 February 1973, p. 2.

² The strike was made by Gulf and Western. Other exploration is being undertaken by Tesoro Oil (contracting for Wendel Phillips) in the Yapen-Sarmi area, a Phillips/Superior consortium off the south coast, AGIP off Sorong and Continental Oil on shore near Merauke (Dinas Pertambangan, Jayapura).

proved the existence near Mt Erstberg of a large ore body containing high concentrations of copper and small quantities of gold and silver.³ In late 1972 PT Pacific Nickel announced a decision to go ahead with a major project on Gag Island, offshore from Sorong. By mid-1972 three other large mining companies had been granted exploratory rights over mining blocks. PT Baliem Valley and PT Paniai Lake began exploration in the central highlands in 1972 (Table 21). PT Kennecott was granted rights over highlands country adjacent to the Papua New Guinea border, but withdrew and ceded all blocks in 1972 after two years' exploration.

The mining contract between Freeport and the Indonesian government was the first approved under Indonesia's new Foreign Investment Law of 1967, and the company was granted very favourable terms. Freeport has special status as a pioneer investor with a three-year corporation tax holiday. It will pay corporation tax at 35.5 per cent after three years and 41.75 per cent after a further seven years, which is close to normal rates for copper mining. The company will pay no land rent or royalty and has no specific obligations for local or provincial development. With the value of exports ranging around \$70-100 million per annum taxation yields after the tax-free period will vary around \$15-25 million.

A very high proportion of the \$150 million invested was used for provision of basic infrastructure.⁴ The mining environment has required a highly capital-intensive operation and the company kept the work force as small as possible to avoid labour problems in an isolated, difficult location. Freeport estimate that the access road accounted for almost one-third of capital expenditure, running 120 kilometres from the coast to the mine at almost 3700 metres, including 1100 metres tunnelling through the Carstenz Range. Aerial tramways carry ore nearly two kilometres from the mine to the mill at an elevation of 2800 metres and a pipeline carries copper concentrate slurry from the mill to the port. On the coast, the new port of Amapere has

³ The report announced the existence of 33 million tons of ore averaging 2.5 per cent copper, 0.025 ounces of gold and 0.0265 silver per ton. Company officials have indicated that a larger ore body exists, but no new statement of reserves has been made.

⁴ The company has an equity tranche of \$20 million and most of the remaining capital is provided by loans from United States, German and Japanese sources. The loans are backed by long-term sales contracts to German and Japanese interests, which have contracted to purchase one-third and two-thirds respectively of total output. The sales contracts are based on the average European selling price of copper from Zambia and Chile. Most of the loans are directly or indirectly guaranteed by United States and German government agencies. Overall, the interest rate averaged about 9.5 per cent.

been built by the company, with ownership and legal control vested in the Indonesian government. A town site for 1500 persons has been constructed 10 kilometres from the mine and an airstrip has been built 35 kilometres from the port.

Table 21 Mining contracts signed in Irian Jaya to December 1972

<i>Name of Company</i>	<i>Shareholders (per cent)</i>	<i>Location</i>	<i>Year Granted Exploration Licence</i>	<i>Ore</i>	<i>Progress</i>
Freeport Indonesia	Freeport 87; rest Japanese consortium	Central high-lands 120 kilometres from coast NE of Kokanau	1967	Mainly copper	Construction begun in 1970; first shipment Dec. 1972
PT Pacific Nickel	US Steel 43; Newmont 15; Gorden (Canada) 10; Hoogovens (Dutch) 15; Mueller 10	Waigeo and Gag Islands off Sorong; Cyclop mountains near Jayapura	1969	Mainly nickel	Exploration of first block completed; second block not yet explored in mid-1972
PT Kennecott	Kennecott	Eastern high-lands to border with Papua New Guinea	1969	Mainly copper	Following exploration, withdrawal at end of 1971
PT Lake Paniai	Newmont Mining 40; ICI, BHP and Philipp Bros. each 20	Lake Paniai area with Enarotali as centre	1972	Various including oil	Started exploration in mid-1972
PT Baliem Valley	Newmont Mining 40; ICI, Philipp Bros., American Smelting and Refining each 20	Central high-lands between Freeport and Kennecott exploration areas	1972	Various including lead and molybdenum	Started exploration in mid-1972

Source: Dinas Pertambangan, Jayapura, 1972.

The cost of construction was held to a minimum by judicious use of skilled labour from a number of foreign sources. At one stage of construction, about three hundred Filipinos and three hundred Koreans were employed, with the remainder of the foreign workforce coming from Australia, the United

States and, to a lesser extent, Japan. The company enforced tight work and camp discipline and maintained a highly differentiated wage structure.⁵

The isolation of the mine, the capital-intensive nature of the operation and poor Indonesian planning have meant that the spin-off to the national and provincial economies, apart from taxation, has been slight. The town is about 19 kilometres or a day's walk from the nearest village. Thus existing villages can gain little benefit from the new school, hospital and community facilities or from sales of food to the town. The Agricultural Service plans to resettle twenty-five families in a new village adjacent to the road to supply vegetables to the town. As with the Bougainville project in Papua New Guinea, there have been disputes over the adequacy of payments for land. The Indonesian government purchased land to be used by the project with tobacco and other goods. One informant described to us how villagers had felt cheated some time after the sale of the land and had made periodic, ineffectual attacks on the camp during construction. The isolation of the project has prevented the villagers' claims becoming widely known and has allowed the government to ignore complaints.

Both local and total employment were larger in the construction than in the production stage. At the height of construction activity about 850 foreign and 1200 Indonesian workers were employed. Several hundred local villagers were employed in unskilled jobs and paid 8-10 cents per hour, in kind at the request of the Indonesian government. Because of their irregular work performance only forty workers from neighbouring villages were employed at the end of construction, and of these only four held more highly paid semi-permanent positions.

The company employs directly only about four hundred workers now that production has started. Others are employed under sub-contracts. Freeport has had difficulty recruiting skilled Indonesians⁶ and attractive salaries have been offered to draw workers from construction jobs in Java and Sumatra and from other employment in Irian Jaya. It is expected that the Fundwi vocational training school in Jayapura will supply a large number of skilled personnel. Company training efforts are confined to on-the-job training.

⁵ Indonesian plant operators received a basic monthly pay of \$100 plus food and lodging, Filipinos and Koreans received about \$300 per month plus board, Australians' wages were several times higher, while Americans received \$1500 per month. There was abundant overtime, so that remuneration of the lowest-paid Indonesian operators equalled \$150 per month plus food and board. English was the main language of communication, through bilingual foremen (personal communications with senior company officials).

⁶ All foreign investment contracts in Indonesia require 75-80 per cent of jobs to be filled by nationals within three to seven years.

In the construction phase almost no foodstuffs, building materials, plant or equipment were purchased within Indonesia. A supply headquarters was established in Darwin and large quantities of goods flown and shipped from there. Frequent transfer calls brought machinery from the United States and Japan and buildings arrived prefabricated from Japan. However, the growing number of Indonesians from other provinces at the project caused Indonesian foodstuffs to be flown by chartered aircraft from Ujung Pandang from October 1972.

The mining project at Gag Island will be very much larger than Freeport. Employment and local purchases will be many times larger⁷ and without the three-year tax holiday and with slightly higher rates of taxation on nickel, tax receipts will be much greater.⁸ The company, in which United States Steel is the principal shareholder, has planned an investment of around \$550 million covering an integrated mining and refining operation. Annual output of pure nickel may exceed 45,000 tons and 4500 tons per annum of cobalt will be refined as a by-product. Production is planned to begin early in 1976.

The company estimates that 2500 to 3000 workers will be employed once mining begins. The investment will cover construction of a township for about 15,000 on Gag Island together with a port, an airfield and other infrastructure. The company has announced its intention to spend approximately \$25 million on a very intensive training program. It is aware of potential cost advantages in development of local supplies of foodstuffs and building materials and has asked Lakbangda to co-ordinate the development of local supplies. Sorong will be an important supply centre and is a possible location for an industry producing steel drum containers for the nickel and cobalt pellets.

Forestry

Irian Jaya possesses a very large, accessible forest area but there are major problems associated with its commercial exploitation.⁹ The great variety of

⁷ The contract covering the development of the resources was signed after our visits to Irian Jaya. Our information was obtained from the contract of work, from interviews with company and provincial officials and, more recently, from personal communications with UNDP officials in Jayapura.

⁸ Under Presidential Instruction No. 18, 1968, nickel mining companies pay corporation taxes at 37.5 per cent for the first ten years and 45 per cent thereafter.

⁹ For more information on forest resources, see S. D. Richardson, *The Role of Forest-based Industries in the Development of West Irian*, New York, Fundwi, 1968.

species means that a large-scale operation is required, with different species being earmarked for log and lumber export, domestic sales of lumber, chipping and other processing. Projects must be sufficiently large to justify the charter of shipping for major markets and to induce calls by liners to other markets. Difficult terrain raises logging costs and, in contrast to other major Indonesian forest areas, there are few possibilities for large-scale river transport in logging operations.

Most of the land area above high water to an altitude of 3000 metres is covered by forest of some economic significance. From the swamps to a height of 600 metres the lowland rain forest (which covers all areas except the savannah in the southeast) features a wide diversity of species. The lowland forests contain good volume density and species for commercial development.¹⁰ The forest from 600 to 1400 metres is more expensive to work because of more difficult accessibility and steeper slopes but it contains a higher proportion of more valuable species, including members of the *Dipterocarpaceae* (which form the basis of the Kalimantan timber industry) and several high-value conifers.¹¹ Several pure stands of these softwoods hold promise of successful development along the lines of the *Klinkia* stands in the vicinity of Bulolo in Papua New Guinea if access can be achieved. Above 1400 metres, inaccessibility reduces the economic role of the forests to local supply.

The 1968 Fundwi report placed great emphasis on forest industries. It proposed the establishment of a large West Irian Forest Corporation, to be a three-way joint venture between Fundwi, private foreign interests and the Indonesian government. Provision of the timber resource was to pay for the Indonesian government's share. A valuable forest area near Sorong was put aside for the venture. Foreign corporations showed interest in the venture but none entered commitments and the Fundwi funds were finally put to other projects.

Over the past few years several foreign companies have looked over Irian Jaya forest resources, but none has made commitments to invest and only Marubeni is close to a final agreement. The Japanese company has a concession area of 255,000 hectares near Nabire and plans to undertake large-scale investment if it obtains more favourable terms. It plans to invest approximately \$8 million in logging (capacity 600,000 cubic metres), in the construction of a sawmill (capacity 60,000 cubic metres), in port facilities

¹⁰ Richardson, *ibid.*, ventured the opinion that numbers of stems and volumes per unit area were more favourable overall than in Papua New Guinea.

¹¹ *Podocarpus*, *arancania* and *agathis*.

and later in a chipmill (capacity 420,000 cubic metres). After eight years it will carry out a feasibility study on the possibility of establishing a pulp plant. In late 1972 negotiations with the central government were deadlocked: the company was not prepared to go ahead if required to pay in full the standard Indonesian timber export tax of 10 per cent. The provincial government is anxious that the deadlock be resolved, since the domestic linkages of such a large project and its demonstration effect on the timber industry could be very important. Given the uncertainty associated with large-scale operations in a new timber province, a more flexible approach could bring greater national benefits.¹²

Following Fundwi's failure to launch the West Irian Forest Corporation, its forestry efforts have been concentrated on a logging and sawmilling operation near Jayapura at Hamadi. The aim of the project was to demonstrate the feasibility of operating a profitable, commercial, forest-based industry in Irian Jaya. The project has failed, incurring large losses and absorbing virtually all of the \$1.4 million Fundwi and Rp 233 million counterpart allocations to forest industries.¹³ Its design was faulty, as it was over-capitalised for the planned level of output and highly dependent on expensive expatriate skills.¹⁴

The Hamadi project was designed to produce 20,000 cubic metres of logs per year and to export 15,000 cubic metres of this as logs, converting the balance of 5000 cubic metres into sawn timber for the local market. Only one export shipment was ever made: 1261 cubic metres to Japan, combined with a shipment from Vanimo close to the border in Papua New Guinea. The Hamadi exports were too small to fill chartered ships and the Vanimo firm was not prepared to share shipments during the Japanese market slump in 1971 and 1972.¹⁵ In an attempt to increase local sales and to utilise some

¹² Perhaps some tax could be contingent on a certain level of commercial profitability being attained.

¹³ The accounts of the project are difficult to interpret as they exclude the major cost items — expatriate staff and, less importantly, overhead expenses related to government and Fundwi administration. Excluding these important costs, invoiced sales to June 1972 amounted to Rp 96 million and the commercial result showed a loss of Rp 19 million. Rp 48 million in trade debts, a large proportion being owed by government departments, is included in invoiced sales.

¹⁴ Fifteen expatriate staff were employed in the early stages, of whom one remained as manager in late 1972. The heavy expenditure and losses at Hamadi have been justified in terms of the jobs created but only about eighty persons, most of them indigenes, were employed at the project.

¹⁵ South Pacific logs were abandoned first in an oversupplied market because of the greater species mix.

excess logging capacity, machinery to prepare specialised products for interior finishing was installed in late 1972. The manager was pessimistic about the prospects for exporting sawn timber but the new demand at the Pacific Nickel project will transform the market situation and may prevent further losses.

The very large sawmill established at Manokwari by the Dutch is now a state enterprise managed by the forestry service. The rated capacity of the mill is 12,000 cubic metres of sawn timber per annum and a peak production of 8214 cubic metres was achieved in 1960. Output slumped to 1040 cubic metres in 1965 and 614 cubic metres in 1968. The national company which operates the sawmill (PKN Manokwari) incurred substantial losses over this period and the provincial government extended IBRp 5.8 million (approximately \$1 million) in subsidies. A new manager in 1969 attributed past losses to poor management, inefficient recruiting of personnel and purchase of spare parts, overcentralised decision-making, poor organisation of log supplies and lack of purchasing support from government organisations.¹⁶ Reforms in 1969 appeared to put PKN on a sounder footing and output increased in the second half of the year. In 1970 total output reached 1578 cubic metres and in 1969/70 an operating profit was realised for the first time for many years. But imposition of the 10 per cent export tax in 1970 and the slump in international timber markets in 1971 seriously affected sales. Increased prices of electricity and severe market difficulties caused a fall in output and losses in 1971.

The marketing problems would have been very much less severe if contacts had been maintained with the European market, which formerly absorbed most of the output of *Intsia*, the dominant species. The absence of regular liner shipping from Manokwari to the Netherlands has hindered restoration of the trade. A minimum of 1000 cubic metres is required to induce calls from vessels travelling to Europe and the mill has not been able to guarantee supply of such large quantities. Large sales from Papua New Guinea indicate that there is still a European market for *Intsia*.

Fishing

There are valuable fish resources off the north and south coasts of Irian Jaya. The shallow Arafura Sea is a favoured habitat of prawns and the deep waters off the north coast from Jayapura to Sorong are rich in skipjack and other

¹⁶ See Direksi PKN Manokwari, *Laporan Rehabilitasi P. D. Kehutanan Manokwari*, Irian Barat, August 1970.

Table 22 Foreign investment in prawning in the Arafura Sea

Name of Company	Status	Location of cold storage/administration	Planned			Actual		Employment (1972)		
			Investment (\$m)	No. of Boats by 1974	Total Capacity (tonnage)	No. boats 1972 (July)	Output (1972)	Volume (tons)	Value (\$)	
West Irian Fisheries Industries (WIFI)	Joint venture between Nisho Iwai and PT Kasari	Sorong	3.65	20	2600	11	800	1,600,000	120	84
Irian Marine Production Development (IMPD)	Joint venture between Mitsubishi and PT Modena	Sorong	2.8	11	1500	6	300	600,000	50	72
PT Tofico ^a	Direct Toyomengka	Jakarta	2.7	10	1520				83	158
PT Nusantara Fishery	Joint venture between Taiyo Fishing & EMDC	Ambon	1.36	8	1400				64	45
PT Mina Kertika	Joint venture between Kijo Kufo and Inkopal	Ambon	3.5	12	1800				101	54

^a Operating boats in Irian Jaya and West Kalimantan.

Source: Interviews with WIFI and IMPD and the Fisheries Department, Jakarta.

tuna species. Shallower waters adjacent to Sorong support large concentrations of small species required as live bait for poling skipjack.

By mid-1972 four Japanese joint ventures, one wholly-owned Japanese company and several domestic companies had prawning rights in the Arafura Sea (Table 22). Two of the foreign companies were based on Sorong, two on Ambon and one on Jakarta. Although the industry is in its infancy and although production by domestic companies has scarcely begun, prawns were the largest export from the province in 1972.

The prawning industry's present contribution to the national and provincial economies is very small. Royalties represent a very small proportion of the value of output¹⁷ and the authorities do not have the means to assess and collect efficiently tax on corporate incomes. All supplies for the trawlers and most of the crews on the boats come from Japan. Only the shore personnel purchase local consumption goods and two 100-ton cold storage chambers and housing for project personnel are the only shore installations. There were 160 Japanese working on the two boats operating from Sorong and these made up most of the crews. However, one company sent a number of Indonesians to Japan for training in docking and ship repairs in mid-1972. Wages for Indonesian crew members are high, ranging from Rp 13,000 per month for unskilled labour to Rp 17,000 per month at that time. Most Indonesian crew members are from outside Irian Jaya.

The skipjack tuna resource off Sorong was surveyed in 1970/71 by a Japanese company under Fundwi auspices. The survey revealed high catches per boat, year-round supplies, a good processing yield and high quality fish.¹⁸ In the first year of the survey, 2300 tons valued at about one million dollars were exported. Sixty-eight Indonesians, including twenty-eight Irianese, received training in skipjack tuna fishing operations.

From October 1972, three Japanese vessels were permitted to work the waters off Sorong on a six-month licence. The FAO fisheries expert based at Sorong thought it likely that they would haul skipjack at the rate of 4000 tons per annum valued at about \$2 million and international financing for a larger industry is being sought.

In negotiations with the Directorate-General of sea fisheries in early 1973 the Asian Development Bank seemed favourably disposed towards financing a tuna fishing venture.¹⁹ It is likely that the Bank will finance Indonesian

¹⁷ Royalties are \$20 per ton and licence fees \$1000 plus \$3500 per annum for each 100 DWT boat.

¹⁸ Nichiro Gyogyo, *Pilot Fishing Operations of Skipjack and Tuna*, Tokyo, 1971.

¹⁹ UNDP officials, Jayapura, personal communication, February 1973.

government purchase of thirty small-sized tuna fishing vessels and the construction of an onshore freezing facility. This project is similar in conception to established World Bank-financed operations elsewhere in Indonesia.²⁰ Pole-fishing for tuna is dependent on the availability of live bait, so that these operations will be confined to the neighbourhood of Sorong. Different techniques would be needed to gain access to the large resource off Jayapura. In late 1972, there were no plans to develop an industry in this area.

Several officials associated with fishing are worried that foreign companies are allowing boats to fish illegally in Indonesian waters and that they are taking prawns too small and too close to the shore. Lack of government boats to police fishing laws and contracts is a major problem of the Fisheries Service. The fishing industry in Irian Jaya can make a very large contribution to the provincial and national economies, but only if planning and administration are improved considerably. Increased efficiency of ports and towns would make Irian Jaya bases more attractive and would strengthen the government's bargaining power in relation to foreign investors. It would also make possible the establishment of a large processing industry. The long-term prospects of the industry would also be enhanced by the integration of fishing, supplying and processing activities of companies based on Ambon and Sorong.

By the late 1970s, annual revenues from the two large mining projects alone will greatly exceed the annual level of external subsidy to Irian Jaya in recent years and within a decade Irian Jaya is likely to be a very large net contributor to central government revenues. Yet only a very small proportion of the indigenous population will benefit directly from these developments. If efforts are made to integrate the activities of investors into other national and provincial economic activity, the new industries based on natural resources will generate much employment and spur the growth of the towns. But as will become more clear, most of these opportunities will be utilised by immigrants from other parts of Indonesia.

²⁰ For example, investments by PN Perikani and some private firms in North Sulawesi. See Boediono, 'An Economic Survey of North Sulawesi', p. 76.

9 The Villages

The importance of isolation and small population in the village economy was introduced in chapter 6. Traditional production was limited to processes that could be used on the tiny scale required to meet the needs of a few hundred people. This limited the range of commodities available to the village and placed a low limit on demand. Village food and housing needs could usually be met by using only a small proportion of available land and labour resources. These basic technological facts remain important, except that villages close to major towns and trunk transport routes are able to participate in a much wider division of labour.

Intra-village and inter-village trade are generally confined to the exchange of a narrow range of commodities. The most important division of labour within the village is by sex, although female and male tasks vary in different areas. Special skill in the manufacture of head-dresses, necklaces, bows, arrows and wood carvings, or in religious matters, is the basis of specialisation and exchange within some groups. Marriage and other social events are usually accompanied by exchange of wealth.

All villages engage in some inter-village trade. It is conducted on a very limited scale by the people of Nimboran near Jayapura.¹ The Kapauku of the central highlands obtain shells and salt from the north and south coasts in exchange for tobacco and artifacts,² and the Mimika people on the south coast are dependent on this trade for their tobacco.³ In the Waropen area in Cenderawasih Bay people obtain vegetables from the highlands and from the nearby island of Yapen in exchange for sago and basketware.⁴ New high-value commodities are traded over the traditional routes: steel axes and other metal implements are well known in villages that have had no opportunities for direct trade with the outside world. Villages that are especially well placed

¹ Kouwenhoven, Nimboran, p. 17.

² L. Pospisil, *Kapauku Papuan Economy*, New Haven, Yale University Publications in Anthropology, 1963.

³ M. Amir Sutaarga, 'Orang Mimika', in Koentjaraningrat and Harsja Bachtjar, *Penduduk Irian Barat*, pp. 273-99.

⁴ G. J. Held, *The Papuans of Waropen*, The Hague, Martinus Nijhoff, 1957, pp. 230-2.

for trade with the external world have become a focus of local trade, in which traditional and modern commodities are exchanged.⁵ However, economic activity associated with inter-village trade is a very small part of total activity in almost all villages.

The staple foods (sago, sweet potato, and taro) are generally available in abundance. However, the village diet often has little variety and the staples all have very low protein content. In some coastal areas sago accounts for almost all food consumption. Over 90 per cent of the cultivated Kapauku land surveyed by Pospisil was planted with sweet potato.⁶ In coastal and lowland areas, consumption of animal protein depends on success in hunting, gathering and fishing. Fish catches are regular in some locations⁷ but highly seasonal along much of the south coast. Wild deer and fish are readily caught in the southeast in the dry season but not in the wet, which is accompanied by greatly increased malnutrition and mortality.⁸ Hunting and casual domestication of pigs contribute to food supply in most areas and intensive pig-raising is important in the highlands, where around half the sweet potato crop is fed to pigs when numbers are at their peak. Pig is consumed mainly on festive occasions and irregularity of protein consumption is a more serious nutritional problem than inadequate quantities. However, there is a more general problem of protein deficiency amongst young children and pregnant and nursing mothers in some areas.⁹

From the base provided by the native abundance of land and natural materials, small improvements can raise material living standards to levels that are high for Indonesia. But failure to provide access to some cash income for the purchase of some modern manufactured articles invariably gives rise to very great frustration. Villagers who have no other access to cash accept employment for short periods at very low wage rates. However, wages much higher than those currently offered in Irian Jaya are necessary for villagers to exchange village life for permanent work in the money economy.

The villages adjacent to the main towns have experienced the greatest

⁵ For example, the trade between Biwar Laut and Amborep villages in Asmat. See Daniel Jorpitsj, 'Kesan Seorang Anggauta Koperasi Asmat', Irian, 2(1), p. 75.

⁶ Pospisil, *Kapauku Papuan Economy*.

⁷ For example, Waropen (Held, *The Papuans of Waropen*, p. 342).

⁸ Department of Health, Merauke (personal communication, October 1972).

⁹ L. A. Malcolm, *Growth and Development in New Guinea*, Madang, Institute of Human Biology, 1970, chapter 2. Too little is known about the state of nutrition, including the biochemistry of digestive processes that have developed on the typical low protein diet to make definitive statements about the general condition of nutrition.

economic change over the past three decades. These villages have been able to sell fish and vegetables to urban markets, and copra, crocodile skins, nutmeg and other village products through the towns to world markets. The growth in town populations and the change in urban consumption patterns under Indonesian administration have increased opportunities for sale of village foodstuffs.

Sales to urban markets

There has been a large expansion in the quantity and value of foodstuffs supplied to urban markets since 1962.¹⁰ All *kabupaten* headquarters and several highlands centres have active markets. There are fish markets in all coastal towns, the largest in Sorong and Jayapura.

Most fish and many vegetables are now sold in the market by small traders from other parts of Indonesia. Like fishermen and farmers everywhere, villagers complain of low prices and cheating. There may be some substance in the complaints. The Agricultural Service in Biak suggested that traders in central and northern Biak took advantage of villagers' ignorance of weights and paid inordinately low prices for bags of vegetables.¹¹ Such exploitation is more difficult close to the towns, where fishermen usually have the option of paddling to the market and selling fish themselves, and farmers can travel to town by mini-bus or canoe from many supplying villages. Nevertheless, a survey undertaken in 1972 suggested that immigrant middlemen organise to exclude local fishermen from the Jayapura market. The same survey stated that the average mark-up on fish purchased from fishermen's canoes in Jayapura harbour and sold in the market was 39 per cent.¹² The evidence does not necessarily confirm the view expressed in the survey that monopolistic market organisation kept prices to producers low: with transport costs, losses from deterioration of fish and time spent in the market, the services probably could not be provided more cheaply by the fishermen themselves.

¹⁰ There are no reliable figures on area, volume or values of agricultural production or sales besides exports. Official statistics even for commercial crops are, according to a senior Agricultural Department Officer, based on estimates of per capita consumption. Yet these figures, including largely unknown sago and sweet potato areas and production and pig numbers, are used widely as an indication of absolute magnitudes. Possibilities of error are very large and these statistics should at best be used to make guarded qualitative judgments about relative magnitudes.

¹¹ Personal communication, June 1972.

¹² Cenderawasih University Institute of Anthropology, *A Survey of the Jayapura Fishing Industry*, Jayapura, December 1972, pp. 46, 51.

Immigrants from Java, Sulawesi and Maluku have also become important producers of fish and vegetables. Macassarese and Butonese have introduced techniques from other parts of Indonesia to Irian Jaya fishing. Large numbers of lamp nets can be seen on Jayapura Harbour at night. Catches are much larger than from the shore nets, lines and other methods used by local villagers. Some of the introduced techniques appear more efficient, but large numbers of Irianese compete using older methods. The immigrant Indonesians pay traditional owners for the right to fish in waters adjacent to the towns. One group of Butonese fishermen near Jayapura pay local villagers Rp 2000 per month for each small boat used for hand-line fishing and Rp 80,000 per month to lay sixteen *bau bau* nets.¹³ About Rp 10,000 per month is paid for each lamp net used by one group of fishermen. Some immigrants have entered 'production sharing' agreements with local owners of fishing rights.

Immigrants probably provide the greater part of fruit and vegetable supply to Jayapura, Nabire and Merauke. Near Merauke, a large community of farmers from Java has been established since colonial times. Official transmigrants in all three towns have made large contributions to vegetable supply and also to supply of transport and marketing services. Inland from Jayapura near Sentani, Macassarese have obtained land for long periods under 'profit sharing' arrangements.¹⁴

The immigrant farmers are more responsive to market opportunities and quicker to participate in government extension programs than local villagers. In the transmigration village of Dosay near Sentani, Javanese settlers have formed four co-operatives for sale of vegetables to Jayapura, but there are no viable co-operatives with indigenous members. In 1971, only four of twenty people who rented a government tractor were indigenous and no Irianese obtained agricultural credit from the regional development bank.¹⁵ However, many Irianese farmers and fishermen have applied for credit from the Joint Development Foundation, having been attracted by Fundwi's announced interest in the welfare of the local people, and one of the Foundation's first two loans was to finance expansion of a small local fishing business.

Regional officials believe that indigenous farmers and fishermen will learn from the immigrants' technology and market orientation. Already local villagers are supplying the Jayapura market with some vegetables that were

¹³ *Ibid.*, pp. 9-39, for a description of indigenous and introduced fishing techniques in the Jayapura area.

¹⁴ According to the agricultural services, land is leased in the Sentani area for 10-12 years on a 40-60 profit split between owner and lessee.

¹⁵ Information provided by the agricultural service in Jayapura.

unknown to them until recently. However, without active extension the transfer may be slight. Avoidance of future problems requires considerable effort to be put into extension of new farming, fishing and business techniques. More attention must also be given to administration of traditional land law. At Abepura near Jayapura there have been instances of land sales by persons without traditional rights and problems will multiply with growth of the towns.

The supply of foodstuffs to the towns is short-distance trade and involves less than 10 per cent of the province's village population. There have been attempts to develop longer-haul trade in vegetables, especially from the highlands with its cooler climate. Competition with supplies from Sulawesi seems possible considering the excess capacity on aircraft returning from the highlands to coastal towns. For several months the agricultural service in Wamena arranged the sale of highlands cabbages in Jayapura, but the scheme incurred losses and was abandoned. Organisational factors were very important in the failure.¹⁶

Village exports

Village incomes derived from exports have fallen well below 1961 levels (Table 4, chapter 2 above), largely owing to the breakdown of shipping and marketing services. Smallholder exports formerly raised incomes in villages that were too far away to sell foodstuffs to the towns. The extent of cash cropping was limited and these activities augmented rather than replaced traditional economic patterns.¹⁷

The total value of copra exports has remained far below the 1961 levels and the surviving production is concentrated in areas close to the major ports. Crocodile skins are virtually the only source of cash income for villages on the rivers and swamps of the south and on the Mamberamo River. North coast exports of skins have fallen only slightly, but the withdrawal

¹⁶ An average price of Rp 36,000 was obtained for a 300-kilogram load of cabbages in the Jayapura market in early 1972. Villages were paid Rp 12,000, collection costs in the Baliem Valley averaged Rp 5300, air transport accounted for Rp 15,000 and transport from Sentani to Jayapura Rp 6000. An average loss of Rp 2000 was incurred. Unpredictability of flights and breakdowns in the marketing chain added to costs. The cost of transport from Sentani to Jayapura was far higher than normal rates, and even at the cheaper back-loading rate freight rates would seem to have exceeded the opportunity cost of return air freight.

¹⁷ Koentjaraningrat, *Masyarakat dan Kopra Rakyat di Pantai Utara Irian Barat*, Jakarta, Bhratara, 1969.

of shipping and marketing services caused a sharp decline in exports from the south. The severe drought that gripped the whole of New Guinea in 1972 made shooting easier and catches rose, but decimation of crocodile numbers in that year may cause exports to be even lower in future. The value of nutmeg production has remained below 1961 levels, but the decline has been less marked than for other crops. The cocoa plantings established along the north coast¹⁸ produced a peak of 41,000 kilograms valued at \$12,800 in 1968 but have hardly been worked since. About 1900 hectares of rubber plantings on the Digul River are now mature, but they have not been tapped for lack of processing equipment and river transport. Low prices, increasing costs and problems of administration have reduced the quantity of copal exports.

Coffee has been planted in both coastal and highlands areas, but has been officially discouraged. Other Indonesian producers have been given priority in filling Indonesia's quota under the International Coffee Agreement (ICA). It is too early to assess the implications of the suspension in early 1973 of the economic provisions of the ICA. But whatever the future of the agreement, the higher price of the arabica varieties that grow well in the New Guinea highlands and the lower opportunity cost of land in Irian Jaya may warrant reassessment of long-term strategies for Indonesian coffee production. Experience in Papua New Guinea suggests that both coffee and tea could be suitable for production in highlands areas. Indonesian officials have had considerable experience with both crops and both commodities are sufficiently valuable in relation to weight for export to be economic even with reliance on air transport.

Both Fundwi and provincial officials maintain that restoration of the old shipping patterns will revive exports from coastal villages and give restoration of the old services high priority. But restoration of shipping links is only one of the essential requirements for reviving village exports. Lack of internal marketing services is a serious bottleneck, especially on the south coast, where indigenous organisations were unable to provide these services following the withdrawal of Chinese trading companies in 1970.¹⁹ Simultaneous improvements in communications and production techniques are required. The investment in a co-ordinated program aimed at expansion of agricultural exports from all coastal areas would be very large and is probably not the most efficient means of raising village welfare.

The new, large fishing industries and especially prawning could provide

¹⁸ At Sentani, Genyem, Sarimi, Yapen and Manokwari.

¹⁹ The Chinese traders no longer found it profitable to export after 1970, when they could obtain foreign exchange freely from local banks.

the infrastructure necessary for the development of new village export industries. However, neither the companies nor the authorities have been alert to the opportunities and no serious efforts have been made to integrate village fish supplies into the new export systems.²⁰

Inland and highlands villages

Most inland and highland villagers' incomes will not be raised significantly in the foreseeable future by sales to and through the towns and enclaves. For the majority of villages, improvement of welfare will depend on introduction of new technology that is useful for production based on a village or local market, improvements of inter-village contacts, subsidised provision of medical and other services and temporary or permanent emigration.

Permanent emigration in family groups is unlikely to be attractive to large numbers of villagers at present urban wage levels, provided a low minimum level of modern services and access to new manufactured goods is maintained in rural areas. However, the poverty of urban settlements in Merauke is an example of the consequences of failure to maintain this minimum level. Considerable numbers of young men find their way to town for periods up to a few years and an increase in this type of movement can be expected.

The spread of new vegetables in inland areas has been an important development in village agriculture. Introduced varieties of maize are now important consumption items in both coastal and highlands areas. Peanuts, cabbages, green peas and other introduced, temperate vegetables are grown for urban markets but, according to Agricultural Service informants, are not important in villagers' diets.

Pelita and the Fundwi program have devoted few resources to improvement in village technology. Following the national program, Pelita priorities stress increased food production with the intention of raising levels of nutrition. Achievement of better diets has been seen largely as a matter of introducing new seeds. Five vegetable and rice seed gardens and one seed and seedling distribution centre to spread the many Indonesian tropical fruits have been financed under Pelita.²¹ The agricultural service has introduced a few simple but effective items of Indonesian technology into Irian

²⁰ Fishing authorities in Sorong say they have tried to persuade the Japanese fishing companies to allow some local fishermen to leave fish in their cold storage, without success.

²¹ Dinas Pertanian Irian Barat, 3 Tahun Pembangunan Pertanian Irian Barat [Three years of Agricultural Development in Irian Jaya], Jayapura, 1972, pp. 34-6.

Jaya agriculture.²² Fundwi has assisted in the financing of several demonstration plots run by the agricultural service in each *kabupaten*. Other Fundwi efforts directly relevant to raising village welfare include a community development project near Wamena, demonstrations of pottery skills in a few villages in Asmat and the Baliem Valley and marketing and other assistance to Asmat woodcarving.

Improvement in village life and in the subsistence economy has long been important in some mission programs. The total resources of the missions are small,²³ but they have contributed to important changes in village technology. In some areas, missions have introduced new vegetables, small numbers of cattle for meat and milk, sheep, foreign chickens and rabbits, innovations in brick, timber and house production, small-scale coffee processing equipment for local markets, and, especially near Agats, co-operative forms of business organisation.

Seven mission-sponsored co-operatives sawing and marketing ironwood provide one of the very few sources of cash in the Asmat area. In 1971, sawn timber sales by the co-operatives were valued at about Rp 4.5 million, and there were also sales of ironwood logs. A large number of villagers shared in this income, with teams of workers alternating in three-week periods of employment. Wages at Rp 100 per day are similar to those paid by the government in Agats.²⁴

Perhaps the most important of recent changes in the subsistence economy is the development of inland fisheries. These were started under the Dutch, but have expanded recently under the Fundwi fisheries program and Operasi Koteka. Numbers of fish fingerlings disbursed from government hatcheries have increased more than tenfold in recent years – from about 150,000 in 1968 to 2 million in 1972. In some areas, demonstrations of fish culture techniques have brought considerable expansion in private fishponds. Inland fisheries are beginning to make important contributions to the diet of villagers, especially younger people.

The main efforts to improve village technology have been made through the Task Forces program, which was established to improve social and economic conditions in inland villages as a basis for more fundamental socio-economic change. The Task Force is divided into four major branches:

²² They include fruit pickers, pig pens of new design and snakeproof hens' nests.

²³ The Catholic missions have about 200 expatriate personnel. We were unable to obtain data on the activities of the Protestant missions.

²⁴ A number of papers relating to the Asmat timber co-operatives were read at a seminar on development in the Asmat held in Agats in June 1972. The papers are reproduced in *Irian*, 2(1), Feb. 1973.

education, agriculture, resettlement, and a special branch which includes a humanitarian project, encouragement of clothing, support for health and religion and, more recently, Operasi Koteka.

In 1972 there were 343 Task Force personnel, of whom 200 were education department employees sent to the many understaffed schools. Courses for village development cadres have been initiated in thirteen inland areas.²⁵ Teachers are drawn from government departments and from unemployed graduates of technical high schools.

The agricultural development program has provided funds for demonstration plots and for diffusion of simple agricultural implements. The humanitarian project is financed through a public appeal organised by the President. In 1970, 6000 kits containing clothing, writing materials, a picture of the President and a national flag were delivered to primary school students in the highlands.

Operasi Koteka aimed to change rapidly village patterns of life. As a wing of the Task Forces, its basic program has remained unaltered.²⁶ It is still managed by the military. Military and other personnel²⁷ are sent to introduce a wide range of new practices into villages. In late 1971, the first twelve teams of about six members each were sent to highlands villages after a three-week training course. Each team lives in a village for approximately six months. It demonstrates new handicraft (mainly ceramic), agricultural, fisheries and animal husbandry practices. Clothing is distributed and 'family living' demonstrated.²⁸ Simple literacy courses are provided and personnel may also help teach at the local primary school.

Official reports record numerous achievements of the Koteka program to June 1972: many metres of seed plots, many fish ponds, hen and pig pens and a long list of community facilities such as foot bridges, sports fields, policlinics and religious centres.²⁹ However, some informants suggested

²⁵ One course was given in each highland kabupaten and five in Manokwari kabupaten. In Wamena the course covered fifty-two lessons for nine months and included three main areas: (1) development of a 'Panca Sila spirit' (ten lessons including five on language), (2) promotion of knowledge of community development (six lessons) and (3) training in technical subjects (thirty-six lessons on fisheries, agriculture, etc.). Ten teachers were employed full-time at the school, Laporan Triwulan 1, Tahun 1972, KPPD Wamena.

²⁶ See discussion on the role of the military in chapter 3.

²⁷ In 1971, Cenderawasih students were obliged to participate in the Operasi Koteka program as a precondition to graduating as Sarjana Muda.

²⁸ In most highlands communities, men prefer to live in a house separate from the women and children.

²⁹ See Lakbangda, Progress Report Task Forces, 1972, Jayapura, 1972.

that villagers did not always value facilities provided under the program. The distribution of clothing close to Wamena appeared to have had little impact, but clothing was better accepted in some other areas. The many problems inherent in the conception of the Task Force and Koteka programs have been compounded by lack of funds and complex administrative procedures. Tension has resulted from some cases of Koteka personnel becoming dependent on villagers for food owing to delay in wage payments.

With respect to general administration of the villages, informants spoke of serious lack of co-ordination between departments with a community development role (the Education, Social and Health Departments) and of overlapping in the activities of the special programs (Koteka and Task Forces) and routine activities of government departments.³⁰ The villages have also suffered from poor vertical communications, and from a tendency for village services to be cut first in meeting shortages of departmental funds, including Health Department funds.

Public health in the province is at a low level. Malaria is endemic in coastal areas, and the Fundwi program, which has emphasised malaria control, can claim no more than that it may have stopped further deterioration. Tuberculosis, yaws, leprosy and influenza contribute to mortality rates that are probably very high by Indonesian standards.³¹

Some senior Irian Jaya administrators are sensitive to the limited success of current and past programs. One senior official in Sektor Khusus spoke to us of the need for cultural change to arise from the aspirations of the village people. He stressed the importance of slow change associated with contact with other cultures. He saw simple village roads, perhaps a cheap dirt road to the highlands and local market places as more promising agents of cultural change than ambitious, special programs.

Certainly the ambitious hopes for village development have not been realised. The gradual spread of the national language amongst the young people is a significant achievement which will assist in the future development of a mutually profitable relationship between the village and wider Indonesian

³⁰ Some kabupaten staff felt resentful at being called upon to help these programs in areas close to major highlands centres and easily covered by their own staff. They were also critical of the amount of planning they were asked to do for Task Forces and Koteka with seemingly few results owing to lack of funds and poor organisation.

³¹ Our sources on public health include officials of the Health Department and the World Health Organisation and Suriadi Gunawan, 'Health Conditions in West Irian', *Irian*, 1(2), 1972, pp. 41-53. Dr Gunawan gives very wide estimated ranges for death rates, crude death rates running at '15-50 and the infant mortality rate between 100-350 per 1,000 depending on the area' (p. 51).

society. In material terms, some villages in favoured locations have benefited from the recent growth of the towns. But the majority of villages have experienced static or falling cash incomes and government services and very limited improvement in their subsistence activities over the past ten years.

10 Papua New Guinea

The eastern half of New Guinea is more favourable to human settlement than the west and has supported a larger population. There is more flat land in the high valleys and more fertile land on the coast and on the islands and the mountains are not quite so steep nor the swamps so large. However, traditional patterns of economic life were very similar on both sides of the border. The differences are much greater today.

The most significant difference between the two modern economies is probably the far more extensive diffusion of monetised economic activity in Papua New Guinea. Both plantation and smallholder production of export crops have extended the area of intense contact with the international economy throughout coastal and island areas and into the central cordillera. Villages that are too isolated or poorly endowed with land to export cash crops participate in the money economy through supply of labour to the towns and the plantations.

Although the towns were slightly larger in Papua New Guinea than in Netherlands New Guinea, they were very similar in economic structure. Many differences have emerged over the past decade. Wage rates and the indigenous urban population have continued to grow at a fast rate in Papua New Guinea. In contrast to developments in Irian Jaya, continued immigration of European expatriates to Papua New Guinea has led to the elaboration of expensive services and western business structures. Immigrant groups dominate administration and large-scale business on both sides of the border but technology and modes of business organisation are strikingly different.

Expression of a desire for changes in economic policy accompanying the handover of sovereignty from Australia to Papua New Guinea could lead to some convergence in the structures of the neighbouring economies. In Papua New Guinea there is now some suspicion of large-scale, bureaucratic business organisation and a desire for more small-scale activity, as is found around the Jayapura market places.

In both economies resource exploitation projects are setting the pace of modern sector economic development. The capture of profits from these

new industries is a key task of economic management. The two economies also share welfare problems: the prime distributional problem in both Papua New Guinea and Irian Jaya is still the poverty of the villages that are isolated from opportunities for transformation through trade of surplus land and labour resources into higher standards of living. In the following sections we look at aspects of the Papua New Guinea economy which provide useful comparisons with Irian Jaya. This enables us to look at problems of economic development in Irian Jaya in a broader context and to utilise Papua New Guinea experience for our later discussion of policy alternatives.

Comparative colonial history

Papua in the southeast of New Guinea was annexed by Britain in 1884 and transferred to Australia in 1906. The northeast and the major offshore islands, often known as New Guinea, was annexed by Germany in 1884. The German territory has been administered by Australia since 1914,¹ except for a brief period of Japanese occupation. Papua and New Guinea have been governed by an integrated Australian administration since the war and the two territories together are now known as Papua New Guinea.

Papua and New Guinea were more important to Australia and Germany than West New Guinea to the Netherlands with its extensive empire in the East Indies. Greater attention from government and private companies combined with the more favourable natural environment to produce very much more rapid commercial development in the east of the island.

German and British nationals had been active in trade with coastal villagers several decades before the annexations and a few German traders had established small plantations on the north coast. By 1913 there were 72,500 acres under plantation cultivation in New Guinea and 43,000 acres in Papua.² Plantations and demand for labour grew rapidly under the military administration during World War I but the rate of expansion slowed after 1918. By the late 1930s, 42,000 labourers were under indenture in the Mandated Territory and 10,000 in Papua and in each territory several thousand indigenes were employed on a casual basis on plantations.³ The New Guinea wage

¹ German New Guinea was occupied by the Australian military in 1914, administered by Australia under a League of Nations mandate in the inter-war period and under United Nations trusteeship after the Pacific War.

² Lucy Mair, *Australia in New Guinea*, Melbourne, Melbourne University Press, 1970, pp. 116, 125.

³ *Ibid.*, pp. 176, 191.

labour force included over 6000 workers associated with the gold-dredging operations near Bulolo.⁴

The employment of villagers on plantations and mines for periods of up to a few years was a powerful agent of cultural change. Although highlands recruitment was prohibited until after the Pacific War, most workers came from new and distant sources thus intensifying the acculturation effect. In major areas of recruitment a quarter of the adult males were away at work at a time and almost all young men spent several years in wage employment.⁵

The short-term emigration of workers had a profound effect on the villages. There were some cases where the village's capacity to supply itself with new garden land and to perform other heavy subsistence work was seriously affected,⁶ but the new tools and the cessation of warfare usually compensated for the loss of labour. The returning workers brought with them some cash and trade goods. They also brought knowledge and interest in new tree crops and smallholder production of copra and cocoa commenced, especially in villages adjacent to the plantation areas where there was a developed infrastructure.⁷ The demonstration effect on smallholder agriculture was intensified in Papua by laws requiring villagers to plant tree crops and in both territories by a head tax.⁸

The greater size and complexity of the modern economy in the east is demonstrated by data on exports and public finance. Exports from the eastern territories were valued at \$8.95 million in 1938, compared with about \$0.55 million from Netherlands New Guinea.⁹ Government expenditure totalled \$1.37 million in the Australian territories, including \$1.28 million derived from internal revenue.¹⁰ The Batavia government's expenditure in Netherlands New Guinea ranged between \$0.22 million and \$0.44 million, of which only \$0.05 million was raised internally.¹¹

⁴ A. M. Healy, *A History of the Development of the Bulolo Region, New Guinea*, Canberra and Port Moresby, New Guinea Research Bulletin, No. 15, 1967.

⁵ Mair, *Australia in New Guinea*, p. 193.

⁶ *Ibid.*, pp. 191-3.

⁷ This was especially important on the Gazelle Peninsula. See T. Scarlett Epstein, *Capitalism, Primitive and Modern*, Canberra, A.N.U. Press, 1968.

⁸ Mair, *Australia in New Guinea*, pp. 78-9; C. D. Rowley, *The Australians in German New Guinea*, Melbourne, Melbourne University Press, 1958, p. 181.

⁹ Commonwealth of Australia, *Annual Report of Papua and the Mandated Territory of New Guinea*, 1938/39; *Nieuw-Guinea*, Part III, Gravenhage, Staatsdrukkerij-en Uitgeverijbedrijfs, 1954, p. 492. There are no official export data for Netherlands New Guinea in the late 1930s, but exports were valued at only F373,000 in 1934, F506,000 in 1935 and F949,000 in 1936.

¹⁰ Commonwealth of Australia, *Annual Reports of Papua and New Guinea*.

¹¹ *Nieuw-Guinea*, p. 234.

In the northeast, the government of the mandated territory used part of its revenues from the Bulolo gold industry to open several schools and to maintain considerable public health expenditure.¹² But the missions contributed almost the whole of the limited education and health effort in Papua as in Netherlands New Guinea, as well as much of the effort in New Guinea.

Exploration of highlands areas was very much further advanced in the east than the west. However, early European contact in the highlands was not followed by intense contact with outside cultures until after the Pacific War, with the major exception of the gold-mining areas near Bulolo.

The Pacific War affected a very much wider area in the Australian territories than in Netherlands New Guinea. But where its impact was felt, the war had a similar influence on village economic life and villagers' aspirations. And as in Netherlands New Guinea the end of the war was followed by a massive expansion of administrative effort and modern sector economic activity.

Post-war changes

The post-war development effort was spread more evenly in Papua New Guinea than in Netherlands New Guinea, where the urgency of the political situation and difficulties of communication caused government expenditures to be concentrated near the coastal towns. The widespread provision of basic administration and social services was an explicit object of Australian policy and a high proportion of government expenditure went into establishment of infrastructure and provision of services in the highlands. Per capita expenditures were roughly equal in Papua New Guinea and Netherlands New Guinea during this period. Internal revenue covered a smaller proportion of total expenditures in Papua New Guinea, but the Netherlands New Guinea revenues were very much more dependent on taxation on public servants' incomes and other internal administration transactions. Administrative services including police were the main items of expenditure in both territories. The most apparent difference in patterns of expenditure was the higher priority given to health services in Papua New Guinea, where 16 per cent of the budget was allocated to health in 1959/60 compared with only 5.5 per cent in Netherlands New Guinea.¹³ Education expenditures represented a slightly lower proportion of the Papua New Guinea Budget.¹⁴

¹² \$A180,000 in 1938/39, Mair, *Australia in New Guinea*, p. 233.

¹³ *Annual Report of Papua and New Guinea 1959/60* (data presented in J. Langmore, *A Critical Assessment of Australian Economic Policy for Papua New Guinea*, Port Moresby, Discussion Paper No. 1, Economics Dept, UPNG, 1972; *Report on Netherlands New Guinea*, 1961.

¹⁴ Nine per cent in 1959/60.

Australian aid continued to grow at a high rate through the 1960s, augmented by high levels of international borrowing at the end of the period. At about the time of the handover of power in the west, a change of policy emphasis occurred in Papua New Guinea. Associated with the acceleration of political change, very much higher priority was given to secondary and tertiary education and much lower priority to health. By the late 1960s education was being allocated 18 per cent of the budget and health only about 9 per cent.

Papua New Guinea experienced a period of very rapid monetary sector growth between 1969 and 1971. Gross monetary sector product rose by 33 per cent in 1969/70 and by 23 per cent in 1970/71 to \$A387 million.¹⁵ The monetary sector work force was estimated at 364,000 in June 1971. The greater part of the growth in monetary economic activity derived from the employment of foreign factors of production and the expatriate population rose sharply from about 28,000 in mid-1964 to 54,000 in September 1971.¹⁶ Much of the accelerated growth after 1969 was attributable to the construction stage of the Bougainville copper mine.

Important structural changes in the economy began to occur in mid-1971. The completion of construction on Bougainville reduced demand for labour and a wide range of materials and consumer goods.¹⁷ Its effects coincided with a period of exceptionally low prices for primary commodities on world markets. Monetary sector product in real terms was static through 1971/72 and into the first half of 1972/73. The indigenous share of money incomes rose through large increases in minimum wages and rapid replacement of expatriates by indigenes in more highly paid employment. By the end of 1972, the expatriate population had fallen to 46,000. Much higher commodity prices in 1973 have restored the monetary sector to growth.

Public finance and resource allocation

The 1972/73 budget in Papua New Guinea made provision for expenditures of \$242 million. As shown in Table 23, the Australian grants and foreign borrowing made up the greater part of government receipts.

¹⁵ Office of Programming and Co-ordination, Papua New Guinea Development Programme, *Review of Progress 1971/72*, August 1972.

¹⁶ Territory of Papua New Guinea, *Statistical Bulletin*, June 1972; D. G. Bettison in E. K. Fisk (ed.), *New Guinea on the Threshold*, p. 223.

¹⁷ The workforce at the Bougainville project fell from 9000 in the construction stage to 3500 when the mine was in production.

Table 23 Sources of Papua New Guinea government receipts, selected years*

Year	\$A million		
	Australian Grants	Internal Revenue	Total Borrowings
1949/50	8.4	2.8	0.0
1959/60	25.6	13.2	0.2
1969/70	97.3	72.4	34.5
1972/73	124.8	95.0	44.9

* Excludes direct expenditure by Commonwealth departments. The main components of the latter were Department of Civil Aviation expenditure at about \$A9.5 million and Defence Department expenditure at about \$A25 million in 1972/73.

Source: Papua New Guinea Budget Papers, 1972/73.

As in Irian Jaya, transport and communications absorb a very high proportion of public expenditure. Expenditure by the Education Department and the Universities totals about 16 per cent of the budget and a considerable part of departmental expenditure is devoted to training. The relative decline in health expenditures has continued, to less than 9 per cent in 1972/73.

Transport and communications

Very much better developed transport and communications in Papua New Guinea have made possible the very much wider spread of administrative and social services and monetised economic activity. An extensive road system has existed in the main plantation areas in New Britain and New Ireland since German times. In highlands areas, a widespread system of simple local roads was built largely with voluntary labour, and the completion of a road between Lae and the highlands in the mid-1960s joined the local systems to the coast. Until 1973 the Australian Department of Civil Aviation had direct responsibility for air transport infrastructure in Papua New Guinea and maintained a very high standard of services. Over the past decade, high priority has been given to upgrading of all transport and communications, spurred in recent years by the attractiveness of such investments to the international lending agencies.

There are 13,000 kilometres of roads in Papua New Guinea. The system is expanding rapidly through international loans and direct central government expenditure on major roads and through central government assistance

to local government councils for construction of village roads. All significant towns are centres of local road systems and Lae on the north coast is connected with the major centres of population in the central cordillera and with the Bulolo Valley by an all-weather road system.

The basic pattern of air services in Papua New Guinea is similar to that in Irian Jaya, with regular services being maintained between main centres and with missions and smaller companies providing unscheduled connections to small centres. The two major Australian airlines have shared traffic on the main routes, but a new national airline, Air Niugini, will replace them both in November 1973. Many more strips on the Papua New Guinea side can receive aircraft of the DC3 and Fokker Friendship class and are serviced by regular flights. Expenditure on air transport infrastructure has approached \$A10 million per annum. With its direct allocations from the Australian budget, the Department of Civil Aviation has been able to expand its services without being scrutinised in the light of Papua New Guinea priorities, and the transfer of civil aviation powers and the establishment of the national airline will lead to a considerable rationalisation of air transport.

Papua New Guinea is also better provided with shipping services. About ten ports receive regular calls from overseas vessels and a very large number of smaller ports are connected to the export points by scheduled sailings. Except for Lae, Goroka and Mt Hagen on the highlands highway, transport between major centres is by sea. At the time of a UNDP Transport Survey in 1968, coastal trade between major ports was running at 74,000 tons per annum, compared with trade from minor ports at about 150,000 tons, exports at about 260,000 tons and imports at 636,000 tons. Since then, further development of manufacturing capacity in Lae and Port Moresby and improvement of marketing organisations associated with internal trade have raised the ratio of internal trade to imports.

The interest of international lending agencies in sophisticated telecommunications networks has contributed to very high levels of investment in these activities in recent years. As with air transport, the ready access to overseas funds has probably led to some over-investment in these facilities, and posts and telegraphs facilities are dependent on government subsidy for debt repayment. In contrast to the poor facilities in Irian Jaya, in 1972 Papua New Guinea maintained forty-two telephone exchanges (thirty-four automatic and eight manual), telephone subscribers in thirteen major centres throughout the country were able to dial one another directly without having to pass through a switchboard and many centres were able to dial direct to Australia. Over thirty post offices and nearly three times that number of postal agencies

handled a very large volume of mail.¹⁸ As might be expected, a large proportion of the use of telecommunications facilities is by expatriates, and the decline in expatriate numbers and the slow growth in monetary sector product since mid-1971 have reduced the profitability of telecommunications investments below expected levels.

The towns

Although government expenditure has had a wider impact in Papua New Guinea the expansion of public spending has been the main cause of rapid urban growth in the capital Port Moresby and in the headquarters of the eighteen administrative districts. The 1971 census indicated that about 8 per cent of the total population lived in the ten centres with more than 5000 inhabitants, compared with about 10 per cent of the population living in the five main towns of Irian Jaya. The population of the ten main towns in Papua New Guinea grew from about 98,000 in June 1966 to about 193,000 in June 1971.¹⁹ The most rapid growth occurred in the mining towns on Bougainville (Arawa and Panguna) and in the highlands towns (Goroka and Mt Hagen). The population of Arawa and Panguna grew from zero to a total of almost 12,000, Goroka grew from 4800 to 10,800 and Mt Hagen from 3300 to 9600.

The towns are expanding at similar rates in Papua New Guinea and Irian Jaya and the expansion has similar sources, but it is very different in character on the two sides of the border. Most of the increase in town population in Papua New Guinea has derived from internal migration from rural areas. Although about 70 per cent of the expatriate population is resident in the ten major towns of Papua New Guinea, it represents little more than one-fifth of the total urban population. Most of the internal migrants have been better-educated persons from coastal villages moving to well-paid jobs in government and private business, other persons from poorer coastal areas, especially the Gulf and Sepik districts, and an increasing number of highlanders in search of unskilled employment, especially from the heavily populated Chimbu District. Movement to the towns seems to have continued at a high rate through the economic recession between June 1971 and December 1972 and urban unemployment has begun to concern political leaders.

¹⁸ About 58 million postal articles per annum in 1971/72.

¹⁹ Territory of Papua New Guinea, *Statistical Bulletin*, January 1972.

Living standards are significantly higher in Papua New Guinea than in Irian Jaya for all sections of the urban population. The very high incomes and consumption of the expatriate community in Papua New Guinea does not have a parallel across the border. Papua New Guineans in administrative and managerial jobs receive incomes at about one-third to one-half expatriate levels, which is usually higher than non-Irianese in similar jobs in Irian Jaya, and well over twice the levels for Irianese across the border. The urban minimum wage at \$A11.80 is about three times money wages in the northern towns of Irian Jaya and over ten times money wages in the south. Prices for local foodstuffs are much higher in Port Moresby than in Irian Jaya, but prices in other towns are fairly similar. The subsidy keeps rice prices in Irian Jaya at about half those in Papua New Guinea and beer prices were also much lower because of high customs and excise duties in the east. Many imported manufactured articles are cheaper in Papua New Guinea despite higher retailing costs. Because rice and beer are so important in the consumption patterns of indigenous workers, the cost of living is probably slightly lower for unskilled workers in Irian Jaya. Costs are higher in Irian Jaya for persons on higher incomes. Urban services, including roads, health services, education, electricity and water supply, are of very much higher quality in Papua New Guinea, but the new government has announced its intention to reduce the subsidy to urban areas implicit in the high quality of these services. On the other hand, the flourishing 'bazaar' economy in the towns of Irian Jaya provides cheaper and more efficient transport and retailing services.

The enclaves

The natural resources endowments of the two territories are very similar, but they have formed the basis of larger industries in Papua New Guinea. The early stages of exploration have indicated that there are probably very large natural gas and hydro-electric energy resources in the Gulf of Papua. There are at least five promising prospects for further mines for non-ferrous ores. One of these, only a few miles from the border in the Western District of Papua, has been the subject of a tentative proposal from the exploring company Kennecott Pacific to the Papua New Guinea government.

By far the most important natural resource project in Papua New Guinea is the Bougainville copper mine, which began production in early 1972. Both the value of exports and capital investment are several times larger than at the Freeport project in Irian Jaya and similar in size to the planned nickel

mining operation off Sorong. As with the Irian Jaya copper mine, a three-year tax holiday will limit Bougainville's contribution to national revenues. The Papua New Guinea administration financed much of the development of urban infrastructure associated with the project, but receives additional income through a 20 per cent equity holding, royalties (1.25 per cent of export turnover) and dividend withholding tax (15 per cent of dividends paid overseas). Other linkages with the national economy are much greater at Bougainville. The permanent work force is nine times as large and purchases of foodstuffs and building materials from other districts have helped raise the Papua New Guinea economy to a new plane of activity. Shared use of telecommunications and air and sea transport has lowered the cost of these services to other users on Bougainville. The Bougainville copper agreement has come under strong political fire in Papua New Guinea despite its relatively large impact on the domestic economy, especially owing to the very high rates of return on the company's investment. In contrast, there is little interest in the terms of the Freeport agreement in Indonesia, although that was even more generous to the operating company.

Exports of prawns from the Gulf of Papua by a number of foreign companies were valued at about \$A1.5 million in 1971/72, slightly more than exports from Irian Jaya. As in Irian Jaya, the tuna industry has larger potential. In 1972, three Japanese/Australian joint venture companies signed almost identical agreements with the Papua New Guinea government and a similar agreement with an American company was to be signed in early 1973. Although the extent of the resource is not known with certainty, it is possible that exports of skipjack and other tuna species will range around 40,000 tons per annum valued at about \$A16 million at current prices. The greatest part of the national stake will come as taxation, which could total several million dollars per annum if problems of taxation administration are solved. The agreements provide for a high degree of local processing including a canning operation and employment in the industry could total several thousands.

Exports of forest products were valued at \$A8.3 million in 1971/72, including \$A4.3 million as logs, \$A1.9 million as sawn timber, \$A1.9 million as plywood and \$A0.2 million as veneer. The total was 7 per cent less than in 1970/71, largely because of depressed conditions in the Japanese market. The Department of Forests has identified a number of forest areas that are suitable for major new forest industries. At one of these near Madang a Japanese joint venture company is investing \$A13 million in an integrated timber operation. At full production annual log output is expected to be about 360,000 cubic metres, most of which will be exported as wood chips,

veneers and sawn timber. Negotiations are proceeding for even larger projects in Open Bay on New Britain and at Vanimo on the north coast adjacent to the Irian Jaya border and for several smaller projects. In New Britain, the forests are in highly fertile areas and logging has been integrated with resettlement and agricultural development.

New plantation industries have developed in recent years, but they have been closely integrated with development of smallholder industries. Oil palm plantings in West New Britain totalled 12,700 acres between 1969/70 and 1971/72, of which over half was planted on smallholder resettlement blocks. Oil palm yields and returns on investment are very high by world standards. The combination of a nucleus estate and surrounding smallholder blocks was also employed in the new tea industry on the swampy floor of the Wahgi Valley, which exported 3200 tons valued at \$2.9 million in 1971/72. Expatriate cattle ranches, largely in the Markham Valley, carried 75,000 head in 1971/72, and were the source of stock for the smallholder cattle industry that was promoted from the late 1960s.

The villages

In recent years, change in the village economy has occurred mainly through expansion of agricultural production for export. Copra and cocoa production in coastal areas have grown slowly, but there has been rapid expansion of cash cropping in the highlands.

Coffee is mainly a village crop and plantings continued despite official discouragement and withdrawal of extension effort in the late 1960s. Until recently exports were limited under the terms of the International Coffee Agreement and stocks of 10,000 tons were held in Papua New Guinea in 1972. The withdrawal of the quota provisions of the agreement in early 1973 has allowed sale of these stocks and rising coffee prices have given highlands incomes a major boost. New plantings are likely to be encouraged for the first time in several years.

A new, smallholder cattle industry has been financed by the Papua New Guinea Development Bank. The bank had provided \$A1.2 million by 1971/72 and a large loan from the International Development Association is being used to expand the industry. The smallholder herd numbered 18,000 in 1971/72. Sales are mainly to local urban markets.

The growth of the towns has expanded opportunities for sales of fish, fruit, vegetables and meat in urban markets. The Rabaul market on the fertile Gazelle Peninsula has for many years carried a wide range of local, Chinese

and European vegetables at low prices. Markets in other centres have been slower to develop. Supplies to Lae, Goroka and Mt Hagen markets have increased considerably in recent years and now include large quantities of cool-climate European vegetables. Peanuts are also available in all markets. However, villagers close to Port Moresby have not taken advantage of opportunities presented by the rapid growth of the capital. The long dry season and the other sources of income available to commuters have limited supplies from villages adjacent to the city and problems of organisation have limited long-distance trade. Some progress was made in 1973 with the establishment of a wholesale facility and several small retail markets and the extension of the road system west of Port Moresby is likely to reduce organisational problems and to induce increased supplies.

As in Irian Jaya villagers adjacent to the major centres enjoy high incomes. Incomes are high as well in most island communities, in more fertile coastal areas and in highlands areas adjacent to the main road network. But many villages with almost half the total population have limited access to cash from trade with or through the towns. Expansion of the road system, including simple council roads providing access to the major system, is increasing the number of persons who are able to participate in the modern division of labour. But for a large minority, economic welfare can be raised only by provision of subsidised government services, by improved subsistence technology and by emigration. Temporary or permanent emigration to towns and plantations is a very important source of cash in many isolated villages. Health and administrative services are spread widely, but are very much more heavily concentrated in the more accessible areas which are favoured by cash cropping opportunities. The third means of raising welfare, improvement in subsistence technology, has been little tried since administrators have placed prime emphasis on introduction of cash crops. Missions and officials have introduced successfully some new plants, including peanuts. But the possibility of raising village welfare through improvement of the local internal economy has been largely ignored.

II Conclusions and Some Policy Implications

Parts of Papua New Guinea and Irian Jaya have been transformed by a century of intense contact with the outside world and two decades of massive government expenditures aimed at promoting social and economic change. But in the majority of villages containing most of New Guinea's population economic structure remains very simple and only slightly differentiated. Wooden digging sticks and sago pounders are still extremely important tools in the production of food. New Guinea is a classic example of the dual economy.

The character of the dualism is very different east and west of the border. In the east, western business structures managed by expatriates earning very high incomes are central to the town economies and the networks of monetised activity based on them. This formal sector uses some of the most advanced (and capital-intensive) technology known to man. In the rapid advance to Independence, Melanesians trained at high cost in formal, western institutions have begun to staff the established organisations. 'Localisation' of the formal structures has little immediate effect on the dualism. But many of the new managers were born in villages and some maintain close contacts with the village. With increasing movement of people between village and town, new technology and new forms of organisation are being introduced to the village and forms of business organisation that are less dependent on written records and formal contracts are beginning to make an appearance in the towns.

The networks of monetised economic activity are less dense and less extensive in Irian Jaya. The towns themselves are built around less complex technology and less formal business organisation. But whereas there is a tendency towards erosion of the dualistic structure in Papua New Guinea, there is an opposite tendency in Irian Jaya.

The end of Dutch colonial rule led to the withdrawal of most of the few modern western business and bureaucratic structures so prevalent in Papua New Guinea. These have been replaced by more labour intensive economic organisations dominated by immigrants from other parts of Indonesia. We have noted how increased demand for labour in the modern economy of Irian Jaya overflows into immigration from other provinces preventing

wages from rising enough to make permanent jobs attractive to the Irian-born. The absence of long-term commitment to wage employment inhibits the growth of commercially valuable skills and underlines the role of the villager as a short-term, low-wage unskilled worker.

Thus the modern economy can be expected to become increasingly alien to the Irian Jaya villager. It will take many years for increases in wages elsewhere in Indonesia to raise unskilled wages in Irian Jaya enough to attract villagers to permanent urban employment. More remunerative employment can only be attained through education in modern skills. For this reason, it is important that opportunities for education in modern skills are made available to as many Irianese as possible. But in the medium term few villagers will have access to such opportunities. The Irianese will remain a village people for many years.

In other countries free migration of labour from low-income areas into previously underpopulated economies has given rise to serious tensions between different cultural groups which have been divided according to socio-economic divisions. Technological change and a rising standard of living in Malaysia and Fiji have occurred mainly within the immigrant Chinese and Indian communities who dominate the modern economy.¹ In Irian Jaya too it will be difficult to prevent the emergence of social problems with the continuation of present trends towards clear divisions in economic activities, corresponding to ethnic divisions within the community.

An understanding of these realities is necessary for formulation of policies directed at raising the welfare of the indigenous people of the province. Increased expenditures in the towns will continue to encourage immigration and widen the gaps between immigrants and the local people. Expenditure in the villages, especially the inland villages, will seldom yield a total economic return comparable to that which can be obtained elsewhere in Indonesia. There is a real conflict between the welfare of the indigenous people and national economic development and a meaningful commitment to raising the welfare of the Irian people requires special budget allocations and programs for village welfare.

The Indonesian government has been aware of some of these problems and the Task Force is an example of the required special budget allocations and programs. But the Task Force as presently constituted does not make a significant contribution to welfare in most villages. It duplicates the functions

¹ See E. K. Fisk, 'Special Development Problems of a Plural Economy: the Malayan Example', *Economic Record*, 38(82), June 1962, and *The Political Economy of Independent Fiji*, Canberra, ANU Press, 1970, chapter 4.

of departments and its activities are poorly integrated with theirs. It is too small. Villagers are too little involved in formulating programs. And Task Force personnel have insufficient training and experience to carry out their very difficult mission. National objectives in the province may be well served by allowing the Task Force to develop into a village welfare commission, co-ordinating village activities of government departments and missions, registering indices of welfare, studying innovations that may prove useful in small, isolated communities and implementing parts of village welfare programs that are not handled effectively by other departments. Most important of all, villagers will need to play a far more significant role in formulating goals if a special program is to be successful in raising welfare.

Beyond provision of the infrastructure necessary to support village welfare programs, investments in the monetary sector must be justified by other objectives, especially by the objective of raising the province's net contribution to national economic development. There is little case for providing funds for projects in the monetary sector of the Irian Jaya economy when returns are lower than elsewhere in Indonesia. Such subsidies would largely benefit Indonesians from outside Irian Jaya and would be an extremely inefficient way of raising national economic welfare. Special village welfare programs apart, there is a strong case for centering provincial planning over the next five years around provision of an efficient infrastructure for the urban growth and the opportunities for economic development that will accompany rapid development of the resource-based industries. For example, Sorong could be planned as a very large centre for fish and timber processing as well as a supply base for the mining industries and a major shipping centre. It could develop profitably into a major Indonesian urban centre. Large volumes of capital inflow will be required for several years to provide for the efficient expansion of transport, communications, urban services and for the social investment that is necessary if severe tensions between immigrants and villagers are to be avoided. But before very long, revenues from the resource industries will cut considerably the net flow of government funds into the province and establish the normal relationship between Java and the resource-rich outer provinces.

Except through government budgets, the development of the Irian Jaya economy will have relatively slight effects on other provinces. Thus there is a good case for treating the province as a self-contained region for planning purposes and for strengthening the provincial planning institutions. However, development of Sorong as the largest city in eastern Indonesia would have important implications for shipping and fishing throughout the region.

Suggestions that the vocational and teacher training centres established by Fundwi could be developed as major training centres for eastern Indonesia have some attraction, although there is a danger that this could choke the highly important flow of Irian-born citizens into remunerative positions in the modern economy. Regional planning will need to incorporate these wider possibilities.

It has been a recurring theme of this book that co-ordination of developments in different economic sectors is especially important and especially difficult in Irian Jaya. This follows from the importance of economies of scale in both production of commodities and provision of infrastructure in such a fragmented economy. For example, we noted the waste of resources associated with adoption of a project approach to sea and coastal shipping. Incomes are not raised through extension of shipping services unless there are simultaneous improvements in other communications, marketing and production techniques. The division of the development effort into a large number of poorly co-ordinated budgets and the focus on separate projects within these budgets leads to wasteful use of scarce capital and skills between sectors and over time. Under present budgetary arrangements, efficient resource allocation is only possible if some provincial co-ordinating body has the resources and the power to play a major role in formulation and execution of all programs. Lakbangda has the required power, but although staffed by competent officials its secretariat is at present too small to play this pivotal role. The strengthening of the secretariat warrants high priority and international technical support in compilation of integrated programs is likely to be more effective than support for a list of separate projects.

One of the Fundwi program's most valuable and least costly activities has been its assistance to general economic management in the province. Encouragement of the price reforms and technical support of the Lakbangda secretariat have been especially valuable. It is unfortunate that the organisational structure of the Fundwi effort has itself contributed to the complexity of provincial economic management. The UNDP concentration on a number of separate projects and the division of projects into UNDP and counterpart budgets have rendered efficient resource allocation more difficult.

Many of the planning problems of Irian Jaya are similar to problems encountered in neighbouring countries and especially across the border in Papua New Guinea. Because there are economies of scale in developing new technology, in marketing and in collection and analysis of economic data, many common planning problems could be solved at lower cost through international co-operation.

The problems caused by the multiplicity of timber species is shared by all South Pacific countries and there is obvious scope for co-operation in the marketing of timber. If extended to shipping, co-operation with Papua New Guinea could transform the prospects of forest industries on the Irian Jaya north coast, which are too small to attract overseas shipping on their own account.

The restoration of direct shipping between Merauke and world markets, which is necessary for rehabilitation of the economy of the southeast, could be achieved most cheaply by restoration of links through Port Moresby. Sharing of telecommunications facilities could raise efficiency on both sides of the border.

If the timber trade or the needs of Merauke promote direct shipping links across the border, there is some opportunity for expansion of commodity trade, despite the similarity of the natural environments. Cheap manufactures from Java that are now sold in large quantities in Irian Jaya's towns would find markets in Papua New Guinea, especially if small-scale retail outlets are expanded successfully. Papua New Guinea has a wider range of relatively capital-intensive manufacturing industries than eastern Indonesia and could supply competitively glass and other containers, some timber and metal manufactures and canned and bottled beverages. There is already some trade in these commodities and in foodstuffs² and this could expand considerably. However, extension of the Indonesian tariff to Irian Jaya would erode this potential.

Both the tuna fisheries and the prawn fisheries of Irian Jaya and Papua New Guinea draw from a common resource. Some communication is necessary for conservation purposes, as well as for assessment of the economic potential of the fisheries. Comparisons of catch, price and cost data in the two territories can provide some check on information supplied by the foreign (largely Japanese) companies in the industries.

The common problems in mining are shared as well by many other countries, so there is less to be gained through bilateral arrangements. In the longer term, the processing of Irian Jaya ores could enhance the profitability of smelting industries based on the rich power resources of the Gulf of Papua. And the existence of proximate, efficient smelting facilities could also raise returns to Irian Jaya producers, especially from smaller ore bodies.

Papua New Guinea and Indonesia share the problem of raising welfare in

² Papua New Guinea exports to Irian Jaya were valued at \$A70,000 in the first nine months of 1971/72, Papua New Guinea Statistical Bulletin, Overseas Trade, March 1972.

small, isolated communities. Little headway has been made in either Papua New Guinea or Irian Jaya towards solution of this problem. Some of the Indonesian technology and tropical fruits that have been introduced into some Irian Jaya villages would have a place in Papua New Guinea villages. The bullock carts used near Merauke would be valuable in the flatter areas of Papua New Guinea, especially now that many people are becoming accustomed to managing large animals. The greater Papua New Guinea experience with export crops could be of great importance to agriculture over the border. The rapid spread of smallholder coffee in the highlands of the east could probably be emulated with appropriate extension support. The Wahgi Valley experience in tea-growing is of very direct relevance to the high, swampy valleys of Irian Jaya. Experience with high-value crops such as pyrethrum and silk may be useful in isolated villages in Irian Jaya, especially since the absence of alternative sources of cash may reduce the significance of the relatively low returns to labour in these activities.

The small-scale town industries of Irian Jaya could be an inspiration to planners in Papua New Guinea, who have ambitions for introducing similar business structures. Of special interest would be the high levels of activity in roadside retail stalls, the active town markets for fruit, vegetables, fish and meat, the street restaurants and barbers, the informal urban transport and some small-scale manufactures. Only part of the bazaar economy has become an indigenous institution in Irian Jaya, so that the conditions under which these activities could take root in a very different social environment require careful study.

Co-operation requires contact and there are obvious political dangers in close contact across the border. Indonesian officials fear trouble on the border resulting from a breakdown in administration in Papua New Guinea or from changed political circumstances causing Papua New Guinean politicians to encourage Irianese dissidents. In Papua New Guinea there is some residual suspicion of Indonesian intentions on the border, which has been partly but not completely removed by recent reassurances from Jakarta. For these reasons, economic relations between Papua New Guinea and Indonesia can be expected to develop slowly. But some of the developments analysed in preceding chapters are likely to reduce the risk of tension being associated with official contact across the border. Increasingly, Papua New Guineans entering Irian Jaya will find a society very different from their own, and differences in the rate and character of social change may weaken feelings of common bonds with the Irian Jaya villager.

The risk of tension across the border will be lessened by Indonesian success

in pursuit of its own objectives in the province, by effective integration of Irian Jaya into the national economy and by raising the welfare of the indigenous people. There will be large economic benefits if recent progress in integrating Irian Jaya into Indonesia permits international co-operation in seeking solutions to the province's unusual and difficult economic problems.

Index

- Abepura, 48, 64, 86
 Acculturation, *see* Social change
 Act of Self Determination, 13, 20-1, 24, 47,
 50; as a turning point for economic
 policy and conditions, 34, 41
 Administration, 20-5, 32, 48, 50, 107, 108;
 colonial, 9-19, 94; Indonesian, 20-5,
 48, 52, 55, 90-1; land, 86
 Agats, 40, 89
 Agriculture, 62, 68; agricultural service, 26,
 74, 88-9; cash cropping (village), 14-16,
 18-19, 86, 95, 103-4, 107; food crops,
 4, 6-7, 17, 74, 88-9, 90, 104, 105;
 Indonesian resettlement, 38-9; plan-
 tation, 10, 94; *see also* Cocoa, Coffee,
 Nutmeg, Oil palm, Pyrethrum, Rubber,
 Sago, Silk, Transport, Sweet potato, Taro,
 Tea, Tobacco, Vegetables, Yams
 Aid, *see* External subsidy
 Air transport, 55, 57-9, 87, 99; airlines, 18,
 41, 58-9, 99; airstrips, 12, 18, 57-8, 74,
 98-9; prices, 41, 86; *see also* Transport
 Ambon, 40, 79-81
 Animals, animal husbandry, 59, 68, 83, 89,
 90-1, 103, 110; *see also* Cattle, Pigs
 Anthropology, 30-1
 Arndt, H. W., 40
 Artifacts, art, 8-11, 82, 89
 Asian Development Bank, 51, 67, 80
 Asmat, 4, 7, 53, 83, 89
 Australia, Australians, 37, 74; Administra-
 tion of East New Guinea, 93-100; aid,
 45, 51, 97-8; trade, 60; *see also* Pacific war
 Bachtar, H. W., 9, 10, 11
 Bakker, J. C. M., 16, 17, 18
 Baliem Valley, 2, 7, 10, 24, 31, 62, 89; *see*
also Wamena
 Bananas, 4
 Banking, credit, 32-6, 38; *see also* Develop-
 ment Bank
 Bazaar economy, 20, 65, 93, 101, 110;
see also Small industry
 Bêche-de-mer, 10
 Bettison, D. G., 97
 Biak, 4, 12, 15, 16, 18, 22, 35, 40, 41, 50,
 56, 57, 58, 61, 64-9, 84
 Bird's Head, *see* Vogelkop
 Birds of paradise, 9
 Boediono, 46, 81
 Bone, R. C., 9, 12
 Border, 1, 107, 110
 Bougainville: island and district, 1, 3, 4, 5;
 mine, 74, 97, 101-2
 Brookfield, H. C., 3, 7
 Budgets, *see* Public finance
 Building industry, 16, 27, 35, 50, 65, 66,
 75, 89; *see also* Housing
 Business organisation, 35, 42, 93, 105
 Bulolo, 76, 95, 96, 99
 Bupati, 23, 37
 Canada: aid, 51, 52, 58
 Cash cropping, *see* Agriculture
 Cattle, 89, 103
 Cenderawasih University, 30-1, 84, 90
 Chinese, 10, 32, 42, 65, 87, 106
 Christianity, 11, 16
 Climate, 2-3, 83; *see also* Geography
 Cloth, clothing, 18, 31, 42, 65, 90-1
 Cobalt, 75
 Cocoa, 18, 87, 95, 103
 Coconut, *see* Copra
 Coffee, 18-19, 87, 89, 103, 110
 Colonial administration, *see* Administration
 Communications, 18, 50, 55-9, 63, 98-100;
see also Telecommunications, Transport
 Co-operatives, 85, 89
 Copal, 10, 14, 15, 87
 Copper, 71-5, 101-2
 Copra, 10, 14, 15, 35, 83, 86, 95, 103
 Crocodile skins, 14, 15, 35, 84, 86-7

- Credit, 32-6, 38, 85; *see also* Banking, Loans
 Currency, 34; *see also* Money
- Daroesman, R., 25, 45
- Development bank: Irian Jaya (Bapeda), 34, 85; Indonesia (Bapindo), 36; Papua New Guinea, 103; *see also* Asian Development Bank, Joint Development Foundation
- Dexter, D., 11
- Dinas Pertanian Irian Barat, 88
- Disease, *see* Health
- Dual economy, 93, 105
- Duijinstee, A., 27
- Dutch, *see* Netherlands
- Economic policy, 106-11; *see also* Planning, economic, Public finance
- Education, 10, 16-17, 19, 25-31, 48-50, 90, 96-8, 106
- Elections (general), 25
- Electricity, 41, 48-9, 65, 66-7, 78, 101
- Employment, 11, 16, 64, 65-6, 72, 74-5, 77, 79, 94-5, 97, 100, 105-6; *see also* Labour, Unemployment
- Enarotali, 22, 24, 50; *see also* Lake Paniai
- Enclaves, 71-81, 101-3; *see also* Forests, Fish, Mining
- Epstein, T. Scarlett, 95
- Esmara, Hindra, 45-6
- Eurasian, 13, 17
- Europe, European, 11, 13, 16, 17, 29, 42, 60, 78; in Papua New Guinea, 94, 96; *see also* Netherlands
- European Economic Community, 18, 19
- Exchange rates, *see* Foreign exchange
- Exports, 13-15, 59, 60-1, 71-81, 95, 102
- External subsidy, 32, 55, 58, 81, 97-8; Australian, 51, 97-8; Canadian, 51, 58; Indonesian, 45-6, 107; Netherlands, 13, 19, 51; United Nations, *see* Fundwi
- Fak Fak: kabupaten, 5; town, 14, 18, 22, 35, 40, 56, 61, 66, 68
- Ferry Awom, 24, 50
- Fiji, 2, 106
- Filipinos, 37, 74
- Fish, fishing, 48-9, 78-81, 90, 102, 109; fish culture, 89, 90; foreign investment, 79-81, 87-8, 107, 109; immigrants, 65, 84-5; imports, 17; village, 83, 84, 89, 90; *see also* Prawns, prawning
- Fisk, E. K., 97, 106
- Foreign aid, *see* External subsidy, Fundwi
- Foreign exchange, 32, 33-5, 51, 61
- Foreign investment, 19, 71-81, 101-3; law, 72
- Forests, forestry, 3, 19, 48-9, 65, 75-8, 102, 109
- Forest Industry Development Corporation, 51, 76, 77
- Freeport Indonesia, 56, 57, 61, 62, 71-5; compared with Bougainville mine, 101-2
- Fuel, 40-1, 48, 61, 65; *see also* Petroleum
- Fundwi, 21, 27-31, 36, 48-53, 56, 57, 58, 61, 74, 76, 77, 88-9, 108; projects and budget allocations, 46, 52-3, 66-7
- Gag Island, 70, 71-3, 75
- Geography, 1-9, 93; transport and communications, 55, 62-3
- Germany: loans, 72; German New Guinea, 94
- Gold, 95, 96
- Golkar, 25
- Golson, J., 1, 4
- Governor, 22, 29, 36, 37
- Grants, *see* External subsidy
- Groenewegen, K., 6, 7
- Gunawan, Suriadi, 91
- Gyogyo, Nichiro, 80
- Hart, D., 3, 7
- Hastings, P., 21
- Hatta, 11
- Healey, A. M., 95
- Health, 4, 6, 18, 21, 48-9, 83, 90-1, 96, 97, 99, 104; *see also* Nutrition
- Held, G. J., 82
- Hollandia, 11, 12, 15, 16, 18, 20, 22, 31; *see also* Jayapura
- Hong Kong, 60
- Housing, 7, 27, 29, 66, 82, 89
- Hughes, I., 7
- Humanitarian project, 90
- Hunting, 83, 87
- Imports, 14, 33, 43-4, 59-61, 65, 101; at copper mine, 59-60, 75; *see also* Tariffs
- Income distribution, 94, 97, 104
- Inflation, 33-4, 40-1; *see also* Prices
- Insurgency: in Java, 11; in Irian Jaya, 23-4, 50, 111
- Interest rates, 32, 34, 35, 36, 72
- International Coffee Agreement, 87, 103

Index

Investment, *see* Agriculture, Banking, Planning, economic, Fish, Foreign investment, Forests, Mining, Public finance, Telecommunications, Transport

Jakarta, 33, 40, 42, 43, 50, 56, 68-9, 79-80

Japan, Japanese, 10, 11, 37, 60, 72, 75, 76, 77, 79-80, 94, 102, 109; *see also* Pacific war

Java, Javanese, 11, 37, 45, 59, 68-9, 74, 85, 107

Jayapura, 20, 22, 34-5, 40, 41, 42, 56, 57, 58, 60, 61, 62, 64-9, 78, 81, 84, 85, 86; kabupaten, 5; *see also* Hollandia

Jayawijaya, 5, 26

Joint Development Foundation, 34, 36, 50, 53, 61, 85

Kabupaten, 21-5, 91; public finance, 46-8, 50

KPS, 23

Kaimana, 57

Kapauku, 10, 82, 83

Karel Gobai, 37

Kennecott Pacific, 72-3, 101

Koentjaraningrat, 12, 86

Korea, Koreans, 37, 74

Kouwenhoven, W. J. H., 11, 82

Labour, 16, 31, 36-40, 65, 72, 73-4, 82, 94-5, 97, 105-6; voluntary, 98; wartime 11; *see also* Employment, Migration, Unemployment

Lakbangda, 22, 24, 49, 75, 90, 108

Land use, 71, 82, 94; tenure and transfer, 74, 86

Langmore, J., 96

Language, 4, 10, 13, 16, 25, 74; Indonesian, 25, 31, 90

Lijphart, A., 12, 13, 14, 15

Loans, 51, 72, 97-8, 103; *see also* Banking, Credit, Development Bank

Localisation: Irian Jaya, 37, 38; Papua New Guinea, 105

Lodewijk Mandjatan, 24

McArthur, Norma, 6

McCawley, P., 25

Mair, Lucy, 94, 95, 96

Malay, Malays, 2, 3, 13, 16, 20, 106

Malcolm, L. A., 7, 83

Maluku, 44, 66, 85; *see also* Ambon

Manning, C., 51

Manokwari: kabupaten, 5, 23-4, 50, 90; town, 11, 14, 16, 18, 22, 40, 56, 58, 61, 62, 64-9, 70, 76, 78, 87

Manufacturing, 65-6, 109; *see also* Small industry

Marind, 6, 10

Marketing, 69, 78, 84-6, 89, 103-4; *see also* Exports

Markets, urban, 31, 38-9, 50, 65, 84-6, 103-4; *see also* Exports

Merauke: kabupaten, 5, 14, 19, 61; town, 11, 12, 15, 16, 18, 19, 22, 27, 40, 50, 56, 57, 58, 59, 61, 64-9, 71, 85, 88, 109

Merpati, 41, 48, 58-9

Migration: Indonesian, 13, 32, 36-40, 52, 64-5, 66, 81, 85, 105-6; international emigration, 19; international immigration, 13, 37, 73-4, 79, 97, 100; from villages to towns, 88, 106; Papua New Guinea, 93, 95, 100, 104, 105; village resettlement, 50, 74

Military, Indonesian, 22-4, 38, 90

Millennial movements, 12

Mimika, 82

Mining, mineral exploration, 19, 62-3, 71-5, 95, 96, 101-2, 107, 109; *see also* Freeport, Pacific Nickel, Copper, Gold, Nickel, Petroleum

Missions, 10, 11, 16, 18, 25, 27, 58-9, 66, 89, 96; *see also* Education, Health, Transport

Moluccas; residency, 12

Money, 32-6, 61

Muspida, 22-3, 24

Nabire, 22, 39, 50, 59, 62, 63, 66, 67, 76, 85

Natural resources, 71-81, 93, 101-3, 107

Netherlands, Dutch, 12, 42, 61, 62, 89, 105; aid, 13-14, 21, 45, 51; dispute with Indonesia, 12-13; Dutch administration compared with Australian administration in New Guinea, 93-6; Dutch administration of West New Guinea, 5-6, 9-19; Dutch East India Company, 9; Netherlands East Indies, 9-12, 13; trade, 15, 60

Nickel, 73, 75

Nimboran, 82

Nipa, 3

Nutmeg, 15, 18, 83, 87

Nutrition, 7, 83, 88

- Office of Planning and Co-ordination
(Papua New Guinea), 97
- Oil, *see* Petroleum
- Oil palm, 103
- Operasi Koteka, 24, 89, 90-1
- Opsus, 34
- Pacific Nickel, 56, 57, 66, 71-3, 75, 78
- Pacific war, 11, 12, 96
- Paniai, Lake Paniai, 2, 5, 10, 11, 24, 31, 62, 63; *see also* Enarotali, Kapauku
- Papua New Guinea: colonial history, 10, 94-7; comparisons with Irian Jaya, 20, 22, 45, 51, 62, 74, 76, 87, 93-4, 105; co-operation with Irian Jaya, 57, 58, 108-11; enclaves, 74, 76, 78, 101-3; geography, 1-5, 93; public finance and resource allocation, 45, 97-8; towns, 20, 100-1; transport and communications, 57, 58, 62, 98-100; villages, 6, 7, 103-4
- Pelita, 21-2, 27, 46, 48-51, 66-7, 68, 88
- Pelni, 39-40, 42, 61
- Pertamina, PN, 41, 61
- Perumtel (Perusahaan Umum Telekomunikasi), 56, 57
- PLN (Perusahaan Listrik Negara), 41, 67
- Petroleum, 10, 12, 13, 15, 41, 42, 60, 61, 71, 73, 101; *see also* Investment
- Pigs, 83
- PKN Manokwari, 67, 78
- Planning, economic, 21-5, 50, 51, 55, 63, 74, 81, 106-11; *see also* Public finance
- Plantations, *see* Agriculture
- PT Jayawijaya, 61
- Police, 96
- Political parties, 25
- Polynesia, 2
- Population, 4-6, 7, 16, 64-5, 97, 100
- Port Moresby, 2, 3, 6, 101-2, 104
- Ports, 18, 59-61, 73, 81, 99
- Pospisil, L., 82, 83
- Pottery, 90; *see also* Artifacts
- Prawns, prawning, 15, 60, 78-81, 102, 109
- Prehistory, 4
- President, 21, 90
- Prices, 32, 33, 40-4, 48, 52, 58, 65, 68, 69-70, 97, 101, 108; control, 34, 40-1
- Processing, 74, 81, 106, 107, 109
- Project aid, 51, 108
- Public expenditure, 13-14, 16-18, 29, 45-54, 96, 97-8, 106-8; growth of the
- Public expenditure—continued
towns, 64-5; *see also* Fundwi, Pelita, Task Forces
- Public finance, 13, 14, 21, 45-54, 95, 97-8, 106-8; *see also* External subsidies, Loans, Public expenditure, Taxation
- Public servants, 16, 27, 30, 37, 38, 59, 64-5, 96
- Pyrethrum, 107
- Religion, government subsidies, 49; *see also* Christianity, Missions
- Representative bodies, 22, 25
- Resettlement, 23, 37, 38-9, 50, 90, 103
- Revenue, *see* Taxation
- Rice, 11, 13, 17, 19, 38, 39, 41, 46, 47, 48, 52, 59, 68, 69, 88, 101
- Richardson, M., 51, 75, 76
- Roads, 11-12, 18, 48-9, 50, 62-3, 66, 72, 98-9, 104
- Rowley, C. D., 9, 95
- Rubber, 19, 87
- Sago, 3, 6, 7, 82, 83
- Salaries, 17, 27, 38, 54, 56, 101; *see also* Wages
- Sawmills, 14, 65, 77, 78, 89; *see also* Forests, Processing
- Sector Khusus Irian Jaya, 21-2, 32, 39, 47, 50, 91
- Sentani, 12, 57, 67; *see also* Jayapura
- Serui, 4, 22, 50, 66, 67
- Shipping, 34, 41, 60-1, 68, 77, 87, 99, 102, 107, 108, 109; inter-island, 41-2; international, 13, 15, 60; river and coastal, 17, 32, 60-1, 68, 76, 87
- Silk, 107
- Singapore, 15, 32, 42, 60
- Sjahir, 11
- Small industry, 65-6, 110; *see also* bazaar economy, Villages
- Social change, 4, 6-7, 9, 11-12, 20, 31, 52, 83-4, 90-1, 95, 107
- Social welfare, 88, 96, 104, 106-7, 109-10
- Soedarmadji, T., 38
- Sorong: kabupaten, 5; town, 3, 5, 6, 8, 22, 35, 40, 41, 50, 56, 57, 58, 61, 64-70, 75, 76, 78, 79, 80, 81, 84, 88, 107
- Sugar cane, 4
- Sulawesi, 39, 44, 45, 46, 64, 66, 81, 85, 86
- Surabaya, 35, 40, 42, 58

Index

Sutaarga, M. Amir, 82
Sweet potato, 4, 6, 83

Tanah Merah, 11

Tariffs, 17, 32, 34, 38, 42-4, 69, 101, 109

Taro, 4, 6, 83

Task Forces, 21-2, 24, 27, 46, 50, 51, 89-91, 106-7

Taxation, 45-6, 72, 74, 77, 80, 81, 95, 96, 102, 108

Tea, 87, 103, 110

Teachers, 17, 27, 50, 90; teacher training 16-17, 48-9, 108

Telecommunications, 18, 41, 48, 55-7, 59, 63, 99, 102, 109; co-operation with Papua New Guinea, 57

Tidore, Sultan of, 9-10

Timber, 65, 76-7, 102-3, 107, 109; Hamadi project, 51, 77; logs, 15, 76, 77, 89, 102-3; lumber, 15, 78, 89; wood chips, 77, 102-3; see also Forests, Sawmills

Tobacco, 10, 69, 74, 82

Towns, 5, 16, 20, 49, 50, 64-70, 75, 81, 82, 93, 100-1, 107

Trade, 59-63; colonial, 9, 13-15; internal, 55, 63, 69, 70, 88, 99; inter-island, 33, 35, 41-4, 61, 75; international, 13, 14-15, 32, 43-4, 55, 59, 60, 75, 109, 110; traditional, 7, 10, 82, 94

Transfer of sovereignty, 12-13, 20-1, 93

Transport, 48-9, 52, 55, 57-63, 85, 98-100; urban, 34, 65, 66; village, 59, 87; see also Air transport, Roads, Shipping

Transport costs, 40, 41-2, 52, 55, 69, 87

Tuna, 78-81, 102

Ujung Pandang, 13, 30, 35, 40, 42, 58, 75; see also Sulawesi

Unemployment, under-employment, 11, 66, 100

United Nations: East New Guinea Trusteeship, 94; peace settlement, 12-13; temporary executive authority, 20; see also Fundwi

United States of America, American, 11, 12, 37, 60, 72-5, 102

Universities, 30, 31, 98; see also Cenderawasih University

Van der Veur, Paul W., 10

Vanimo, 57, 77, 103

Vegetables, 31, 39, 74, 82, 84, 85, 86, 88-9, 103-4, 109; see also Sweet potato, Taro, Yams

Villages, 17, 27, 31, 49-50, 82-92, 103-4, 106-7; exports, 14-15, 17-18, 60, 62-3, 84, 86, 93, 94, 103-4, 107; incomes, 86, 88, 104; location, 82, 83, 104; technology, 82, 85, 88, 104, 109-10; transport, 107; welfare, 52, 55

Vocational training, 17, 26-9, 56, 58, 74, 80, 108; vocational training centre, 51, 108

Vogelkop, 2, 6, 9, 19, 23

Wages, 17, 27, 32, 34, 38, 40, 56, 65, 74, 80, 83, 89, 93, 94-5, 97, 101, 105-6; see also Salaries

Wamena, 22, 50, 58, 62, 63, 64, 65, 66, 67, 68, 69, 86, 89, 90

Waropen, see Yapen-Waropen

Water supply, 67

Weapons, 7, 82

West Irian Forest Corporation, see Forest Industry Development Corporation
World Bank, 81

Yams, 4, 6

Yapen-Waropen, 5, 8, 18-19, 82, 87

Zainal Acub, 22, 24, 54

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