The Australian National University
National Centre for Development Studies
Pacific Research Monograph No. 12

Foreign investment in Papua New Guinea
Policies and practices

Philip Daniel and Rod Sims

Foreign investment in Papua New Guinea

Finally there is the question of dependence on foreign investment. As in many policy areas, Papua New Guinea has had the benefit of watching what has happened in other countries. There is often far too much ideological debate about whether foreign investment is a good thing or a bad thing, and far too little attention paid to how we can get the foreign investment we need on the best terms.

Concluding remarks of Barry Holloway, CBE, MP, and Minister for Finance in his 1979 Budget Speech delivered on 14 November 1978.

Pacific Research Monograph

12

Foreign investment in Papua New Guinea
Policies and practices

Philip Daniel and Rod Sims

Series editor Helen Hughes

National Centre for Development Studies
The Australian National University
Canberra
1986

National Library of Australia
Cataloguing-in-publication entry

Daniel, Philip.
Foreign investment in Papua New Guinea.

Bibliography.
ISBN 0 86784 761 1.

1. Investments, Foreign — Papua New Guinea. I. Sims, Rod. II. Australian National University. National Centre for Development Studies. III. Title. (Series: Pacific research monograph; no. 12.)

332.6'73099'53

ISSN 0155 9060

Printed and manufactured in Australia
by the Australian National University.

Printed and manufactured in Australia by the Australian National University.

Abstract

This monograph initially examines the relationship among Papua New Guinea's economic structure, development strategy, macro-economic policy and foreign investment policy. In general terms it then examines the available statistical data on foreign investment, the general regulatory framework faced by foreign investors, the evolution of general fiscal incentives and comparative expectations and experience in foreign investment flows.

The foreign investment policy and experience in the mining, petroleum, forestry, agriculture, fishing and manufacturing sectors are then discussed in detail: the success of Papua New Guinea's policies in mining and petroleum contrasts with the less favourable experience in other sectors. The paper considers to what extent foreign investment regimes which evolved in the various sectors have been consistent with the country's situation and objectives, and also with the minimum requirements of foreign investors. In explaining the difference between expectations and outcomes of foreign investment flows an attempt has been made to distinguish the relative influences of international market conditions, domestic economic or physical constraints, and policy inadequacies.

The paper seeks to demonstrate that when the role of foreign investment is placed within the context of a country's development strategy, when clear objectives are identified, with policies targeted to real constraints and based on an understanding of the relevant international industry economics, foreign investment can bring immediate net benefits which are worth the effort involved to ensure the pre-conditions just stated are met.

The paper concludes that Papua New Guinea will have to devote more attention to foreign investment policy in the non-mining sectors of the economy and identifies a number of important factors upon which success in attracting beneficial foreign investment will depend.

Contents

Tables and Figures

Tables

Figures

Acknowledgments

The monograph was prepared as a case study for the Economic Affairs Division of the Commonwealth Secretariat as part of a project on comparative private foreign direct investment policies and performance.

The project stems from concern about the debt crisis and real decline of aid flows. Can private direct investment play a role in filling the gap and generating exports? How have expectations of investment flows differed from outcomes? What new approaches to investor/host-country relations show promise? Papua New Guinea was included because of its apparent success in reaching satisfactory deals in the mining sector.

The authors are grateful for the cooperation of the Government of Papua New Guinea in this study. A number of government agencies provided valuable help, in particular the Department of Finance, the Department of Minerals and Energy and the National Statistical Office.

The authors also wish to thank Vince Cable, Mike Faber, Keith Palmer and John Wylie for their helpful comments on an earlier draft as well as those attending a seminar in July 1985 at Marlborough House, London, organized as part of the Commonwealth Secretariat project.

The authors also wish to thank Vishnu Persard, Director of the Economic Affairs Division of the Commonwealth Secretariat, and his colleagues, for their support for this research.

Finally, the authors are extremely grateful to Marguerite Cooke and Jane Deakin at the IDS, Sussex, for typing and revising successive drafts of the monograph. Florence Kireta at the Commonwealth Secretariat assisted with the typing of earlier drafts.

The opinions expressed in this paper are the responsibility of the authors and not any of the agencies with which they have been associated.

Key to symbols used in tables

..	not available
n.a.	not applicable
-	zero
A$	Australian dollar
US$	United States dollar
(P)	provisional estimate subject to revision
FY	financial year

Foreign investment in Papua New Guinea: policies and practices

1. Introduction

Papua New Guinea reached formal independence from Australia only in 1975. Its small, open economy exports little other than primary mineral, agricultural and forest products; it imports almost all its fuel, capital goods and other inputs to production, together with the larger portion of its marketed food requirements. Only one-eighth of the economically active population in 1980 had formal wage employment. At the time of internal self-government in 1973, Australian grants met approximately half government expenditure, and the World Bank did not recognize the country's sovereign credit-worthiness until 1976. Surface transport in Papua New Guinea is made extremely difficult by the terrain: domestic markets are deeply fragmented, and the capital city is still not connected by road to any other major population centre.

Yet in the ten years since internal self-government Papua New Guinea became a leading innovator in the design of relations between host countries and foreign investors in minerals industries. After successfully renegotiating the agreement governing the country's one large existing mine, Bougainville Copper Limited (BCL) in 1974, the government reached agreement with other foreign investors for a feasibility study into another large copper and gold prospect at Ok Tedi in 1976, and approved development proposals in 1980. In May 1984, Ok Tedi began gold production, making Papua New Guinea about fourth in the league of western world gold producers, behind the United State, but, for the next two to three years at least, ahead of Brazil and Australia. When the copper stage of Ok Tedi is brought into production, Papua New Guinea will rank just behind Peru and the Philippines, but ahead of South Africa in copper mine production capacity.

Following the Bougainville and Ok Tedi agreements, and an agreement with Esso for petroleum exploration, general policies for minerals and petroleum were set out and general tax legislation for the sector was passed in 1978. By mid-1985 fourteen petroleum prospecting licences had been negotiated with foreign companies, governed by full agreements along the lines of a standard model. Natural gas has been found off-shore, and there are indications of commercial quantities of oil from two on-shore wells drilled in 1983 and 1984.

At the same time, Papua New Guinea has managed since independence to dampen the severe fluctuations in economic activity levels characteristic of primary commodity exporters. Inflation has been contained at moderate rates, external payments have been kept in medium-term balance, and the local currency (the kina) remains freely convertible for all current transactions. In spite of a significant decline in the real level of Australian aid a current budget surplus has been sustained throughout by cautious fiscal policy. The proportion of grant aid in government expenditure has now fallen to 30 per cent. Despite the high level of exploration activity, mining revenues in 1983 and 1984 met a lower proportion of total government spending than at any time since Bougainville Copper Limited began to pay tax; there has since been considerable widening and deepening of the revenue base.

In contrast to these successes, Papua New Guinea's foreign investment policies in relation to forestry, agriculture, fishing and manufacturing have been confused and sectoral performance has been poor. Among other problems these sectors have suffered from relative neglect, compared to mining, at the higher political levels. With the exception of one oil palm project and some small ventures exploiting the nation's lobster and prawn resources, since Independence there have only been four major projects implemented in the forestry, fishing, agriculture and manufacturing sectors combined, and none of these can be counted a success: the Ramu Sugar project more than tripled the price of domestic sugar, the steel rolling mill promptly ceased operation, as did a timber venture, and another timber venture is in serious default of its agreement.

In this paper we examine the relationship between direct foreign investment and the development strategy of Papua New Guinea, and consider to what extent the foreign investment regime evolved in different sectors of the economy has been made consistent with, on the one hand, the country's situation and objectives, and on the other, with the minimum requirements of foreign capital sources. In explaining differences between expectations and outcomes for foreign investment flows an attempt is made to distinguish the relative influence of international market conditions, domestic economic or physical constraints, and policy inadequacies. The sectors chosen for case study are set in the broader context of the framework governing private investment as a whole.

The general approach taken in this paper is organized around three main questions. First, of the three potential sources of investment initiative — government, local private and foreign private — what have been the relative roles of each, sector by sector, and why? Second, in choosing an assignment of roles in promoting investment and negotiating agreements have policies addressed real or imaginary constraints? Third, what has been the distribution of risk and reward among the parties to projects involving foreign direct investment? Throughout the monograph

we stress the influence which the general framework of macro-economic management and microeconomic interventions will have upon investment decisions in individual sectors.

2. Papua New Guinea: economic position and development strategy

The country's topography and natural resource base have been largely determined by its location in the zone of intensive crustal activity at the West Pacific rim. This explains the faulting, folding and volcanic activity which have produced the central mountain ranges of the mainland and the larger islands, and also the rich mineralization characteristic of the whole Pacific rim. The topography creates extreme difficulties for land communication, settlement and agriculture. Swamp conditions are prevalent in many lowland areas, while the young landscapes of the highlands exhibit steep slopes, rapid water run-off and soil erosion. The opportunities for extensive settlement based on sedentary agriculture are limited. Soil and climatic characteristics, however, have generated large areas of mixed-species tropical hardwood forest. According to Papua New Guinea's Resource Atlas (1973), only one per cent of the land area (461,700 sq. km) is first-class agricultural land; 24 per cent is suited for agriculture, but with limitations; 4 per cent is suitable for grazing; 55 per cent is deemed unsuitable for commercial agricultural development, while the remaining area's potential is not known.

According to the most recent census (see Table 1) a little under half the 1980 citizen population was engaged in economic activity, and, of this portion, only about one-eighth had wage-earning jobs. These firm distinctions between types of employment, however, are potentially misleading. While there are differing forms of economic activity (formal, informal, subsistence), people may switch easily from one to the other; over the course of a year significant sections of the population may be part-participants in all three, and especially in some combination of money-raising and subsistence rural activities. For this reason, a dualistic model which classifies both workers and products into distinct sectors of activity is probably not appropriate in Papua New Guinea. A useful alternative is to consider the inter-relationship between systems of economic life based, on the one hand, on exchange of gifts and subsistence agriculture, and on the other, on commodity exchange, division of labour and capital accumulation (Gregory 1982). Present-day Papua New Guinea can then be described

Table 1 Economic activity of citizen population, 1980

	Number	% share
Formal wage employment	200,392	6.8
Informal money-raising activities (mainly farming and fishing)	532,414	18.0
Subsistence farming or fishing, and housekeeping	669,959	22.7
Not economically active	1,291,154[a]	43.7
Other (including unemployed) and not stated	262,615	8.9
Total citizens	2,956,534	100.0
(Non-citizens)	54,193	
(Total population)	3,010,727	

[a]Of which 877,406 were below 10 years of age.

Source: Calculated from data in Papua New Guinea, National Planning Office (1983).

as an 'ambiguous' economy: the gift economy, based on the reproduction of the clan form of society in conditions of extremely limited alienation of land, has now incorporated within itself aspects of the commodity economy — money and imported products. Conversely, the modern or commodity economy utilized labour and, to a limited extent, land drawn from the gift economy. People may function in both 'economies' simultaneously.

The Papua New Guinea national accounts recognize a distinction between marketed and non-marketed production: the latter accounted for 17 per cent of gross domestic product (GDP) in 1983, although there is a prevalent view that this is a considerable underestimate of the strength of the traditional economy (Papua New Guinea, National Planning Office 1983:17). Papua New Guinea's development pattern to date has consisted of a recent, rapid but uneven extension, to wider areas of the country and greater numbers of people, of opportunities to gain cash incomes from marketed production, thereby altering the nature of the traditional economy, while this has relieved subsistence production of some of the burden of supporting a rapidly growing population, it has not necessarily tended to destroy it — principally because the process of land alienation has hardly advanced at all.

As the census suggests, however, the ratio of those deriving cash from informal or self-employed activities to those earning

wages is about 2.7:1. If previous census classifications (1966 and 1971) are even roughly comparable, then this ratio had been rising at a very rapid rate (0.7:1 in 1966, 1.2:1 in 1971 — see Jackson 1981: Table 1.8). It is thus obvious that growth of wage employment is far from being the principal avenue of economic development in Papua New Guinea. The rapid spread of smallholder export crop production since the mid-1960s, the development of rural services and infrastructure, and, in more recent years, the growth of urban self-employment appear to have caused informal and self-employed income opportunities to grow much more rapidly than wage employment. Such a pattern of development had already been envisaged by late in 1972, when the first national government came to power (see, for example, Overseas Development Group 1973: 27), and was explicitly incorporated into the National Development Strategy of 1976:

> Wage employment offers very limited prospects ... it is unlikely that wage employment will grow by more than 3 per cent per year over the next decade ... the number of people in wage employment would rise to 270,000 by 1986. By this time the total workforce will have grown to over 1.65 million .... The Government will encourage the growth of wage employment by promoting the establishment of industries and other modern sector activities that are economically viable. However, the Government will not provide permanent substantial subsidies merely to promote a marginal increase in wage employment .... Rather than subsidising a minority, the National Development Strategy seeks to promote the incomes of the majority of the workforce by providing opportunities for self-employment (Papua New Guinea, Central Planning Office 1976:19-20).

At self-government, the Papua New Guinea authorities were faced with a major budgetary constraint on their ability to promote employment or self-employment by means of additional public spending: the high degree of dependence upon budgetary assistance from Australia. As a result of a late, but rapid, build-up of government service provision and infrastructural investment from the mid-1960s, central government expenditure had grown to account for 40 per cent of market GDP by FY1972/73, and half of this expenditure was funded directly by Australia (see Appendix Tables A.2, A.18). With the approach of Independence both governments wished to see the share of Australian aid in Papua New Guinea's budget begin to fall. Although arrangements were subsequently made to ensure that the decline would be gradual, broadly predictable and sustainable, it meant that a portion of additional domestic revenue-raising capacity each year would have to be devoted to the objective of fiscal self-reliance. The combined requirements for public service and infrastructure provision, and for reductions in Australian aid therefore placed a premium on revenue-generating economic activities, and on an increased tax yield from existing activities. Following renegotiation of the

Bougainville Copper Agreement, and marked increases in other forms of taxation, internal revenue was quickly raised to almost 60 per cent of government spending, while Australian aid slipped back to about 35 per cent (Appendix Table A.18). The relative changes in real value of various public finance aggregates over the decade FY1972/73 to 1983 are shown in Table 2: revenue has grown rapidly relative to both GDP and government expenditure, while the real value of Australian aid fell by one-third. By the time of publication of the *National Development Strategy* late in 1976, the government was already stating that tax rates had been raised sufficiently and that future revenue increases would have to come from economic expansion.

Table 2 Indices of relative change in public finance FY1972/73-83

Index of: (FY1972/73 = 100)	Level in 1983
Real market GDP	109.4
Real government final consumption expenditure	74.8
Total government expenditure[a,b]	110.3
Non-mining revenue[a]	164.8
Total domestic revenue[a]	173.5
Foreign grants[a]	67.8

[a] All deflated by the implicit price index of gross domestic expenditure (market component), base 1977.

[b] Including interest payments and Ok Tedi investments in 1983.

Source: Appendix Tables A.3, A.4 and A.18.

Apart from a modest amount of continuing gold production from the alluvial fields at Wau and Bulolo, Papua New Guinea's mining sector has consisted solely of the Bougainville copper mine at Panguna in the North Solomons Province. Since the commencement of commercial production in April 1972, BCL has exported concentrates each year containing up to 193,000 tonnes of copper (1978), 23 tonnes of gold (1978) and small quantities of silver. These exports have accounted for between 40 and 60 per cent of domestic export earnings each year, depending upon relative export prices. Since renegotiation of the Bougainville Copper Agreement in 1974, government revenue from the mine (taxes plus dividends) has amounted to a maximum of 27 per cent of domestic revenue (1980) and a minimum of 5 per cent (1983); the actual flows to the budget have been stabilized by means of a Mineral Resources Stabilization Fund (MRSF). BCL, however,

now directly employs only just over 3000 Papua New Guineans, and its use of domestic intermediate inputs is minimal; the government has therefore consistently recognized government revenue as the mine's principal contribution, and as the most significant potential contribution of other mining projects.

Bougainville Copper Limited's largest contribution to economic growth came during the construction period and the early years of production up to 1975. As is usual in modern mining projects, high-grade ores were extracted first, so that mining costs have tended to rise over time as ore grades have fallen. Furthermore, BCL is by far the largest single user of imported fuels in Papua New Guinea, so that its costs have increased still more as the real price of oil has risen. 1980 was an exceptional year because of the very high price realized for gold; with that exception, BCL's revenue and GDP contribution has been tending to fall. Mining revenue flowing to the budget met 3 per cent of government expenditure (excluding Ok Tedi investment) in 1983 — down from an early peak of nearly 11 per cent in FY1975/76 (see Appendix Tables A.19 and A.20). The direct contribution of BCL value added to GDP fell from more than 17 per cent in FY1973/74 to 7 per cent in 1983.

The constraint placed on the growth of government expenditure by the declining real value of Australian aid, and the tendency for BCL's GDP contribution to fall, have both restrained the overall rate of growth of market GDP in the decade since self-government. On average, we estimate that the rate of growth of total real market GDP has been about half the rate of growth of the market economy *excluding* the direct BCL and government value added contributions plus major mining investments (calculations detailed in Appendix Table A.1). It has been suggested that when the indirect effects of government spending are also excluded, the underlying growth of activity outside BCL and government has been even stronger at a number of points in the decade (Garnaut and Baxter 1983: Chapter 6). The effectiveness, or otherwise, of the government's efforts to increase the availability of income-earning opportunities cannot therefore be properly gauged from aggregate GDP statistics.

The openness of Papua New Guinea's economy is clearly shown in Table 3, where the composition of GDP is given for two years of roughly average terms of trade over the decade — in later years, the Ok Tedi project greatly inflates both investment and import shares. Exports consist overwhelmingly of primary products (Table 4), while imports consist of food and consumer goods (40-45 per cent), fuels and raw materials (20-25 per cent), and other capital goods (35-40 per cent). Domestic manufacturing accounts for no more than 10 per cent of GDP, and includes a substantial element of processing of agricultural products for export. Accordingly, domestic multipliers are low; the market economy is driven by real exports and exogenously-determined investment.

The level of economic activity is thus liable to wide fluctuations in line with variations in the terms of trade, and (to a lesser extent because capital formation is substantially offset by imports) in investment levels. For this reason, the government has attached great importance to the stabilization of income and expenditure flows around levels judged to be sustainable over cycles of fluctuations in export prices.

Table 3 Structure of gross domestic product by expenditure items, FY1972/73 and 1978

	Percentage share	
	FY1972/73	1978[a]
Government final consumption expenditure	28.8	25.4
Private final consumption expenditure	55.4	56.7
Market	(34.9)	(41.7)
Non-market	(20.5)	(15.1)
Gross domestic investment	18.1	21.3
Market	(17.6)	(21.1)
Non-market	(0.4)	(0.2)
Exports	36.6	41.7
less imports	-38.9	-45.1
GDP (k million)	791.6	1,413.3
Market %	(79.1)	(85.0)
Non-market %	(20.9)	(15.0)

[a]Shares calculated from total net of statistical discrepancy.

Source: Appendix Table A.2.

Table 4 Export shares of principal commodity groups

	FY1972/73	1978	1983
Metal minerals	63.1	44.9	55.8
Tree crops	26.9	43.9	32.3
Timber and fish	7.6	9.6	9.6
Other	2.4	1.6	2.3

Note: FY1972/73 and 1978 were years of approximately average terms of trade over the FY1972/73-83 period; 1983 was considerably below average.

Source: Appendix Tables A.21 and A.22.

Some of these relationships are illustrated in Table 5. The period from 1981 onwards includes the effects of Ok Tedi mining investment upon capital formation and GDP — largely foreign-financed, as the low ratio of savings to investment in these years indicates. Before the commencement of Ok Tedi, phases of strong GDP growth tended to be associated with rising exports and improving terms of trade (perhaps with a slight lag, as occurred after the coffee and cocoa boom of FY1976/77), while the generally strong growth of capital formation does not appear to be directly associated with export performance or the terms of trade. It will be argued below that investment, instead, has been strongly influenced by the economic policy environment. Given terms of trade fluctuations, the operation of producer price stabilization funds for major agricultural exports and the MRSF for government mining revenue, the ratio of gross savings to gross investment has fluctuated widely — as one would expect. Nevertheless, until 1980 Papua New Guinea experienced relatively high savings ratios (taking into account, of course, government savings supported by Australian aid), reflected in a comfortable current account balance of payments surplus (apart from minor deficits in FY1974/75 and

Table 5 Growth and fluctuations in the Papua New Guinea economy, FY1973/74-84

	Percentage change over previous year in				Ratio of gross national savings to gross domestic investment
	Market GDP (1977 prices)	Exports (1977 prices)	Gross fixed capital formation[a] (1977 prices)	Terms of trade (1977 base)	
FY1973/74	2.1	22.8	-5.2	33.3	3.33
FY1974/75	-1.4	6.3	15.1	-33.6	0.93
FY1975/76	0.5	-12.6	-27.0	-10.4	1.33
FY1977[b]	-1.7	-6.4	37.9	47.5	1.35
1978	8.2	9.4	8.9	-11.4	1.23
1979	2.3	-0.3	15.7	16.7	1.22
1980	-2.1	-0.3	12.9	-10.8	0.76
1981[c]	1.4	5.4	2.5	-23.6	0.47
1982[c]	-0.5	0.1	15.3	-5.5	0.46
1983[c]	0.7	1.8	3.6	11.3	0.53
1984[c]	0.2	4.9	-28.6	4.6	0.60

[a]Market component.

[b]1977 over FY1975/76.

[c]Including effects of Ok Tedi construction.

Sources: Appendix Tables A.1, A.3, A.4, A.9.

FY1975/76) and accumulation of foreign exchange reserves. Until 1980, therefore, *new* inflows of foreign direct investment (or of private capital in general), were not of major financial significance in supporting domestic capital investment. In fact, when retained earnings are ignored, balance of payments data suggest a net outflow of foreign capital over the period (Appendix Table A.11).

In large measure, these trends in the relationship of foreign investment to Papua New Guinea's growth can be simply explained. After the completion of BCL construction there were no large mining investments until the commencement of Ok Tedi. Mineral exploration activity, as we shall see below, has continued at a relatively high level, but until recently this did not involve very large overall investment expenditures. Mainly as a result of the Plantation Redistribution Scheme introduced in 1973, and partly because the profitability of the traditional form of labour-intensive plantation agriculture deteriorated with rises in labour costs and fuel prices relative to product prices, net disinvestment by foreigners (both resident and non-resident) appears to have taken place in the older tree-crop industries). This disinvestment in agriculture has only just been offset by new investment in oil palm and forestry; until about 1980, new foreign investment in agriculture, forestry and fishing fell substantially short of expectations. Between 1972 and 1976, during the main period of uncertainty surrounding the transition to self-government and Independence, there were a number of purchases of substantial shares in foreign owned enterprises by new state-sponsored institutions (for example, portfolio investment by the Investment Corporation, and establishment on the basis of existing foreign businesses of the Papua New Guinea Banking Corporation and a national airline, Air Niugini). These changes were part of a deliberate attempt to implement the first of the 'Eight National Aims' set out in December 1972:

> A rapid increase in the proportion of the economy under the control of Papua New Guinean individuals and groups and in the proportion of personal and property income that goes to Papua New Guineans.

It must be remembered that this aim was put forward at a time when almost the only significant private Papua New Guinean ownership and control in the market economy was in smallholder agriculture. Outside the mining industry and public utilities there were also few significant state shareholdings. Organized construction, transport and commerce were owned and run by foreigners; plantation agriculture and export/import businesses were predominantly in the hands of three large Australian or British-based trading companies.

During the middle and late 1970s, therefore, there were three main sources of investment initiative, other than the limited amount of new foreign direct investment: investment of

retained earnings by existing foreign businesses, the public sector, and the small-scale Papua New Guinean private sector consisting predominantly of rural smallholders. There are unfortunately insufficient data for the period to permit an accurate estimate of the contribution of each group. Inspection of available material for FY1976/77, when net foreign investment (excluding retained earnings) was negligible, suggests the following approximate distribution of gross fixed capital formation:

Public sector	35%	
Private businesses		
- mining	20%)	together representing about twice the level of retained earnings
- other	25%)	recorded for the balance of payments
Smallholders	10%	(including own-account capital formation, such as land-clearing)
Unindentified	10%	(covering capital expenditure by missions, cooperatives and business groups, purchase of new dwellings by owner-occupiers, livestock not for slaughter etc.)

Such a distribution takes no account of the extent to which rural groups and individuals have invested in urban assets; such investment has never been measured, but may now have become significant. The shift in investment initiative in the older types of tree-crop agriculture (copra, cocoa and rubber) was mirrored in rising shares for smallholders in the supply of these export crops (see Section 12).

By 1982, capital expenditure in the corporate private sector (excluding mining) still relied to a very large extent on retained earnings, but the relative importance of domestic and, especially, foreign bank lending had risen considerably (Table 6). The change was partly a result of an increase in the number of substantial foreign-financed projects (especially in agriculture and forestry), and partly a result of a deliberate effort by the authorities to encourage off-shore borrowing by private businesses. It should be noted that while 1982 was the first year for which such financing information was collected it was a year of deep recession, and thus not necessarily representative of medium-term trends.

In summary, Papua New Guinea's overall development strategy since self-government consisted of the following elements (Papua New Guinea Central Planning Office 1976). The principal objectives were to increase the proportion of income accruing to, and income-generating assets owned by, Papua New Guineans, to encourage a wider, and more even, spread of income-earning opportunities

Table 6 Financing of private capital expenditure, 1982[a]

Industry	Percentage shares			
	Bank loans			
	Domestic	Overseas	Equity	Retained earnings
Agriculture and forestry	26.6	30.2	22.0	21.2
Manufacturing	17.0	43.7	2.8	36.5
Construction	14.4	31.4	3.3	50.9
Wholesale and retail trade etc.	23.1	5.5	2.3	69.1
Transport and communication	22.4	16.4	2.7	58.5
Finance	19.3	1.0	29.9	49.8
Other services	20.7	0.9	2.5	75.9

[a]Excluding the mining sector.

Source: Data provided by the National Statistical Office, May 1984.

among the population, and to achieve this predominantly by encouraging rural self-employment. During the 1972-75 period the objective of redistribution from foreigners to nationals probably took priority, while the objective of creating more income-earning opportunities, widely distributed, gained ascendancy from about 1976. The government's ability to play the leading role was to be constrained by the objective of moving gradually towards fiscal self-reliance — implying steady reductions in both the real value of Australian aid, and its share in supporting government spending. As a corollary of both the self-employment and financial self-reliance goals, the development of major mineral resources was to be promoted *not* for any direct developmental benefits (employment, private sector income, industrial linkages etc.) but for its potential contribution to government revenues and thus to the means of achieving other objectives. The pattern of growth in general economic activity was broadly to follow comparative advantage with no widespread use of trade controls or protective tariffs; but, by means of rapid improvement in publicly-provided social and physical infrastructure, and by means of policies designed to improve the country's relative cost position (e.g. localization and wage restraint) the aim was progressively to increase the range of industries which could be profitably established in the country. In recognition of employment and income distribution aims, and, also, perhaps, of the likely origin of private Papua New Guinean capital investment, the government rejected the approach of applying discriminatory tax

and policies towards the rural sector: 'Most of the burden of [an] export tax would fall on rural smallholders whose incomes are below the minimum level for the payment of income tax. Levying taxes on low income rural producers will tend to decrease future investment and goes against the goal of raising the lowest rural incomes' (Papua New Guinea Central Planning Office 1976:39). The government's own influence upon resource allocation and income distribution, after the 1972-75 period of asset redistribution, was to be felt through the pattern of taxation and of public expenditure allocation.

It can be seen from this account (and from the 'Eight Aims' or the *National Development Strategy*) that economic growth was not to be considered an end in itself, but was to be viewed as a means towards the achievement of other goals. This was, in part, a reaction to the policies of growth maximization followed by the Australian administration in its closing years (1965-71) without explicit regard for regional or social income distribution considerations. There was to be a period during which great emphasis was placed on creating a framework of policy and institutions to ensure that the fruits of long-term growth were more evenly distributed.

Without digressing at length on criticisms of the government's development strategy, it is fair to state that overemphasis on stability and equity at the expense of total income growth were frequently alleged. There were, at various times, critics who felt that more emphasis should have been laid simply on the growth of manufacturing and/or agricultural production. Sometimes such criticism was based on the view that formal wage employment creation should have higher priority, and that a protectionist trade policy could be used to overcome comparative disadvantage. Other critics argued that the economy was altogether too open and should be made more 'self-reliant' autarkic and less 'dependent'. At times, missions from the International Monetary Fund (IMF) and World Bank inclined to the view that aspects of macroeconomic policy, as well as explicit redistributive measures, had militated against growth (e.g. World Bank 1982).

Since 1980, when the first full change of government since 1972 took place, there have been signs that the government's stance has been shifting towards one of a more explicit emphasis on growth. From the perspective of the *National Development Strategy* (Papua New Guinea Central Planning Office 1976) there is a good sound justification for such a shift: the policy framework now in place (including that for mining, discussed in this monograph), together with the incidence of taxation, the mechanisms of public expenditure allocation and of wage determination, goes a considerable way towards ensuring that the benefits of economic growth can be widely spread. In so far as the shift is based upon pressure from critics about the supposed 'lack of growth' in the past, however, it is probably misconceived — in that it is

based on inadequate national accounts data, and upon failure to appreciate that, for a decade, the government and mining sectors have been an inevitable brake on overall growth. Our data, and those presented by Garnaut and Baxter (1983) suggest growth in other sectors has been strong, if fluctuating, and has been based on particularly strong growth in investment and exports. Where growth has been slow or negative (plantation agriculture) or below expectation (forestry and fishing) the explanations must be sought in sector-specific policy failures, or in general structural constraints (land tenure, high relative costs) that are not amenable to macroeconomic policy solutions or even medium-term re-allocations of public spending.

Future income growth in Papua New Guinea is thus most likely to come from reinvestment of mining and other revenues accruing to the state in infrastructure and skills needed to stimulate private investment, or to a lesser extent in directly productive enterprises; from reinvestment by Papua New Guineans engaged in export agriculture, both directly and through rapid development of financial intermediation; and, finally, from whatever flows of new foreign investment, or retentions by existing businesses, can be achieved.

3. Macroeconomic management and foreign investment

> The Government has established, and intends to maintain, a framework of economic policy which provides for stable growth, and, as far as possible, insulates the economy from severe external shocks; an economic environment which allows the investor to plan ahead with reasonable confidence is probably the most effective investment incentive of all (Papua New Guinea National Planning Office 1978b:87).

Papua New Guinea's post-independence framework of macroeconomic management and policy has been described at length elsewhere (Morauta 1979; Palmer 1979; Papua New Guinea National Planning Office 1978a and b; Garnaut 1981; Garnaut and Baxter 1983). For present purposes, we are concerned with three aspects of macroeconomic management: its incentive effects upon foreign investment; the place of foreign capital flows in the balance of payments, and the question of whether attitudes towards foreign investment have been significantly influenced by short- to medium-term balance of payments pressures.

In brief, the objectives of macroeconomic policy since first coherently formulated around 1975 have been: to maintain a convertible local currency and a serviceable level of foreign debt; to achieve a relatively low and stable rate of price inflation; to stabilize the level of economic activity, as far as

practicable, around the level indicated by the medium-run terms of trade and the prospects ofr exogenously-determined investment; and, finally to create conditions in which the growth of income-earning opportunities would at least keep pace with the growth in demand for them. These objectives, and particularly the last, were developed to support the wider development strategy we have already outlined. They can be regarded as an adaptation to Papua New Guinean conditions of the traditional macroeconomic objectives of internal and external balance (Meade 1951). The objective of 'internal balance' has sometimes been explicitly defined for the Papua New Guinean case, with the element of price stability separated out, along the following lines:

> Full employment can be defined as the state in which the number of people who prefer wage employment to village life, given the level of wages and other factors affecting non-village and village standards of living, roughly balances the number of wage and other non-village jobs available (Garnaut and Baxter 1983:54-5).

There is room for disagreement over the applicability of such a concept of internal balance in circumstances of considerable labour-market fragmentation, and where the 'market-clearing' wage for many of the markets is extremely difficult to identify. Nevertheless, if the determinants of the supply and demand for income-earning opportunities are separated into the growth of investment on the one hand and the distribution of income on the other, the concept can be converted into targets that are locally relevant (Palmer 1979) without carrying the implication that growth and stabilization objectives can be separated, or that internal balance can be brought about in the short-run by rapid changes in wage rates or public expenditure. Our formulation follows this second approach.

With low domestic multipliers, but with the economy liable to extremely wide fluctuations in activity levels as a result of export price fluctuations, a counter-cyclical fiscal policy would have required impracticably large and frequent adjustments in taxes, subsidies and the overall level of public spending. A given change in the government's deficit was likely to have stronger effects on the balance of payments than upon other macroeconomic variables. Moreover, Papua New Guinea is a price-taker for all its significant exports, has a relatively small non-tradeable sector, and, throughout the period under consideration, money wages were effectively linked to import prices through indexation arrangements. Thus permanent changes in relative prices could not be achieved through exchange rate adjustments, and so the 'switching' mechanism (Corden 1981) was not available for balance of payments management.

Accordingly, stabilization of the level of activity was approached by direct measures to dampen fluctuations in producers'

incomes (and government revenues) from exports. These consisted of the stabilization funds for coffee, cocoa and copra, administered by the respective industry boards, and the MRSF. Their balances in periods of surplus were largely sterilized in deposits with the central bank. The government's direct contribution to stable demand consisted of the attempt to maintain real public spending on goods and services on a steady and slowly growing path. The balance of payments was to be managed by fiscal policy, supported by a cautious but largely passive, monetary stance. Under these arrangements, the current account of the balance of payments (and thus the level of foreign exchange reserves) was liable to sharp fluctuations around the medium-term level. Given medium-term external balance, and given the very limited effects of the exchange rate on relative prices or real incomes, the exchange rate could be varied to moderate the effects of imported inflation. This combination of policies became known as the 'hard currency strategy'.

It should be stressed that this framework has relevance as long as all its elements are kept in the appropriate relationship to one another, and as long as the assumptions of limited domestic economic linkages, small non-tradeables sector, downwardly rigid real wages and so on continue to hold. In the early 1980s, the economy was subject to a series of internal and external economic shocks necessitating considerable fiscal and monetary retrenchment to restore external balance. This process afforded an opportunity to secure modification of the wage indexation arrangements from early 1983, so that some degree of 'switching' by exchange rate devaluation became feasible. Nevertheless, once the adjustment had been made (at the cost not only of reduced levels of activity, but also of higher rates of inflation directly caused by devaluation) the framework continued to be applicable.

The instruments in the framework designed to promote income distribution, employment and growth objectives are strictly 'macroeconomic' only in so far as they affect the overall degree of utilization of resources (especially labour) rather than their allocation. Wage policy and budget policy (tax and expenditure allocation) have, however, conventionally been treated as part of the integrated policy framework in Papua New Guinea, and are so treated here. Wage policy affects investment, and thus growth, through its impact on the government budget (in which wages and salaries have accounted for around 40 per cent of expenditure — Colclough and Daniel 1982) and upon the potential cost-competitiveness of new medium- and large-scale private sector industries. This is not to say that levels of investment in natural resource-based industries will be primarily influenced by wage levels, or that Papua New Guinea has the potential to become a centre of labour-intensive manufacturing industry at any feasible level of real unskilled wages (given the floor to wages set by subsistence activities). Nevertheless, wage levels represent probably the most significant element of the domestic cost structure amenable to

any degree of policy influence, and there is evidence that the rapid real increases in the unskilled urban wage of 1972-75 had a major adverse impact upon both employment levels and the cost of government (Colclough and Daniel 1982:56-66). Since 1975, the government has generally pursued a policy of stabilizing the real incomes of urban workers through indexation incorporated in three-year wage determinations, while permitting any productivity and localization gains to reduce real labour costs. In 1976 and 1983 there were additional reductions in real wages, though these were partly offset by increases in non-wage labour costs (leave provisions, provident fund contributions etc.). With budget policy used to influence the distribution of income and the allocation of resources, the interplay of wage policy and budget policy influences rural incomes, urban employment and wage levels, and thus migration.

The overall framework was broadly successful in meeting its objectives from 1976-80 (Garnaut and Baxter 1983), but was then placed under considerable strain by a number of internal and external economic shocks over 1980-82. Nevertheless, sufficient restraint on aggregate demand was applied to ensure that over the period since monetary independence (1976-84) the overall balance of external payments has permitted a more than adequate level of foreign exchange reserves to be maintained, and borrowing capacity has been available for use in the more difficult circumstances of the 1980s.

General economic stability has almost certainly contributed to the rapid growth of investment shown in Table 5, both by encouraging reinvestment by existing businesses and by creating an environment in which new natural resource-based and agricultural projects could be successfully negotiated. The latter account for the bulk of private investment from 1980 onwards. In contrast to the position in many less developed countries, Papua New Guinea now has a long record of currency convertibility, continuity of input and consumer goods supply, real wage stability, and broad predictability in public revenues and expenditures.

Private capital flows have not in themselves been significant in preserving external balance — the very large inflows associated with Ok Tedi from 1981 onwards have been substantially offset by imports. But since the large private flows go predominantly to export industries, they are important in relaxing future balance of payments constraints. Policy towards foreign investment has not been influenced by short-term balance of payments pressures; in the sectors in which there have been successes (notably minerals) policy has been influenced more by a long-term view of comparative advantage and development prospects. Possibly most important has been the realization that a country experiencing chronic government revenue and foreign exchange shortages will not be well-placed to strike beneficial deals with foreign investors.

4. Foreign investment stocks and flows

The available statistical material on foreign investment in Papua New Guinea is assembled in Appendix 2, and in Appendix Tables A.11-A.17. There is very little portfolio investment by foreigners in Papua New Guinea, the most significant element is the 23 per cent public shareholding in BCL. Valued at its historical cost, the stock of direct foreign investment financed by equity inflows probably reached around US$1 billion by the end of 1983, while associated loan-financed foreign investment had probably reached a similar figure. There is no satisfactory basis for estimating the sectoral distribution of this stock: it is probable that at least one-third of the combined total is accounted for by BCL, and a further one-third by Ok Tedi capital expenditure up to the end of 1983. Hence the accumulation of foreign investment outside the mining sector is probably fairly modest. The picture is complicated, however, by the fact that these figures are derived from the history of investment in Papua New Guinea by non-residents; there is no reliable account of investment by resident non-citizens.

From the completion of the Bougainville mine in 1972 until the commencement of Ok Tedi construction in 1981, net direct investment inflows, excluding retained earnings, stayed at very modest levels. Retained earnings were a consistently important source of investment finance, but net private capital flows overall were negligible. From 1980, however, inflows increased rapidly, principally for Ok Tedi, but also for a number of agricultural and forestry projects. Both new equity investment and retained earnings were important as catalysts for inflows of foreign bank lending to private sector projects. By December 1983, the Bank of Papua New Guinea estimated private external debt outstanding at US$859.4 million of which US$650.3 million was owed by the mining sector, and US$120.5 million by new agriculture and forestry projects. The remainder was accounted for by the trading companies, commercial banks, and various smaller enterprises.

As might be expected, dividend flows to non-residents from companies other than BCL have been minor — usually less than K10 million per year. Interest payments in recent years have significantly exceeded dividend outflows. By way of comparison, remittances of savings by temporary residents (mainly expatriate contract employees) have run at least five times the level of dividend remittances (Table A.12). The vast majority of dividends paid to residents, however, are still believed to be paid to resident foreigners; about half the dividends of Papua New Guinea companies are paid to residents. Other forms of current commercial payments overseas (royalties, patent fees etc.) are negligible.

Australia has continued to be the single most important source of investment flows during the 1970s and early 1980s; the foreign shareholding in BCL is Australian-based, and an Australian

company holds 30 per cent of Ok Tedi equity. In 1983, however, the total direct investment inflow from the United States was greater; a similar American shareholding in Ok Tedi was supplemented by investment in minerals and petroleum exploration. The United Kingdom has tended to be an important source of agricultural investment (with the Commonwealth Development Corporation as the main element). There is no deliberate policy about country sourcing, flows by country vary according to the structure of foreign company participation in new projects. Papua New Guinea has signed some form of investment promotion and protection agreement with the United Kingdom, West Germany, and the United States (via the Overseas Private Investment Corporation, OPIC), but there has been no initiative for one with Australia.

5. Foreign investment policy and objectives

While colonial policy was apparently little concerned with the distinction between national and foreign ownership of investment, policy in an independent Papua New Guinea clearly was. We have already quoted the first of the 'Eight National Aims' which called for a rapid increase in the proportion of Papua New Guinean ownership of the economy and receipt of the income generated. It is clear from a number of post-Independence government documents, however, that the need for a continued flow of new foreign investment was recognized — principally on the grounds that, without it, tax revenue could not be expected to increase sufficiently to permit both reductions in aid and real increases in public spending (Papua New Guinea National Planning Office 1978a:17-18).

Since self-government in 1973 all political parties and nearly all Papua New Guinea politicians and public servants have consistently held that foreign investment is to be excluded or restricted in areas where Papua New Guieans can in the short- to medium-term own and control an activity: in other areas foreign investment is to be welcomed wherever it is of clear advantage to the country. (A neo-marxist view opposing further foreign direct investment, largely confined to some staff at the University of Papua New Guinea, has had little or no influence on policy.) The interesting policy questions were therefore to define the excluded or restricted activities and to determine when a foreign investment is of clear advantage to the country.

Essentially three schools of thought emerged on these questions. First, the 'nationalist' school, which takes an optimistic view of what areas or activities Papua New Guineans can seek to own and control in the near future. This group was especially powerful in the early 1970s when, as has already been stated, the economy was overwhelmingly in foreign hands. It has diminished a little in importance with time as government statutory authorities were established in key areas and more Papua New Guineans became involved in business.

The second group, in a sense at the other extreme, is less concerned about the nationality of the investor and feels that increased production in the economy is a good thing. This group could be described as having a very low rate of time discount, willing to ignore any early negative effects of a project because, they argue, when local demand and economic linkages improve, the project will be of net benefit to the economy well into the future. Reinforcing adherence to this approach was the view that the movement from villages to urban areas was inevitable, whatever action any government might take. Simple arithmetic suggested that jobs needed to be quickly created in the towns to satisfy the endless demand for them. This second group can be called the 'production maximizing' school and has often found vocal and active adherents in the Industry and Agriculture departments of successive governments, and in parts of the private sector.

The third group is keen to provide Papua New Guinea investors with every advantage in areas where they can hope to compete with or replace foreign investment, but is even more concerned to ensure that any investment is of net benefit to the economy. This 'benefit maximizing' school has always had its main following in the central Ministries of Finance and National Planning. They have a relatively high rate of time discount, not being willing to forgo revenue if a project was in significant need of continual government subsidy or provision of costly initial infrastructure.

This group believes that rural-to-urban migration is largely a function of the relative level of benefits in the two areas and the probability of securing those benefits (that is, in town, of finding a job). A project which provided urban employment at the cost of large subsidy meant less government spending in the rural areas, and so was not favoured. In the rural areas there exists a large potential labour supply for the towns, but given Papua New Guinea's strong traditional rural economy money spent on providing rural services could prevent that potential being realized. It must also be said that sections of this group were influenced by the experience of Papua New Guinea's southern neighbour, Australia, which is widely acknowledged as having an overly protected and therefore inefficient manufacturing sector that has inhibited the growth of other sectors in which Australia may have a comparative advantage.

Each of the main groups had core support in one or more political parties. The Pangu Pati, formed by Michael Somare (prime minister from 1975 until early 1980, and then again from mid-1982) contained many supporters of the 'benefits' school. The party of the country's second prime minister (Julius Chan, from 1980 until mid-1982), the Peoples Party (PPP), largely supported the production-maximizing approach. Finally, the Melanesian Alliance, made up of some people especially prominent in the Constitutional Planning Committee prior to Independence, largely supported the nationalist school.

The temporary alliances formed between any two of the three schools as different projects were evaluated have always been fascinating to observe, informative, and often frustrating. Some examples will illustrate.

The 'production' school had by 1978-89 long been pushing a local cement factory. The 'nationalist' and 'benefits' schools combined to prevent the government giving the necessary undertakings for the project to proceed (see section 14 below). The former argued that small-scale vertical kiln technology was more appropriate and could more easily be owned and controlled by Papua New Guineans. The latter argued that the project was not viable as it would produce cement at double the then import price, a fact not disputed by the production maximizers.

The 'production' and 'nationalist' schools naturally came together on the question of increasing incentives for investors, even though the latter school was interested only in incentives for citizen investors. These schools also combined to ensure that the Government provided the necessary undertakings to allow the Ramu sugar project (see section 12 below) to proceed, their interests coinciding because of its near 50 per cent public sector equity. Those in the 'benefits' school argued that the project was not viable and, indeed, since its recent start-up domestic sugar prices have been 3-4 times import parity and the project therefore probably a net foreign exchange loser.

To complete the circle of temporary alliances, the 'benefits' and 'production' schools have (largely unsuccessfully) opposed the 'nationalist' school in trying to have the government take measures to encourage existing expatriate plantation owners to increase production (see discussion below on the agriculture sector).

The battles over these issues, and especially over the Ramu sugar and cement projects, have often been bitter, with most members of each school appearing intransigent. This is hardly the climate in which to make sensible general or project-specific policy, or for government to make the best of its negotiating position by presenting a united front.

These problems differed in intensity between sectors, however. In mining and petroleum projects very few of these problems arose. There never has been a serious school of thought pressing for a large national equity share or restriction of foreign investment in these sectors: they are generally felt to be too large, too technical and with few linkages with the rest of the economy to justify such moves. The benefits to be gained from mining and petroleum were also clear: capital intensive, with few linkages, and with the potential for large absolute amounts of profits the essentially unchallenged criterion by which such projects stand or fall is their ability to generate government revenue. The potential rewards from the minerals sector are so large that

senior politicians have been keen to devote time and attention to it.

Moving to the other extreme, the manufacturing sector had few similar advantages. There has been continual dispute over the relative importance of revenue, employment, training and general economic linkage objectives which has made policy formulation difficult. There have also been many disputes over the 'appropriateness' of the chosen technology and the importance of future national equity options. As a result of these complexities and its assumed lack of importance this sector has never commanded high-level political attention for the required time.

Other sectors lie in the middle of the spectrum. We shall see throughout this monograph that Papua New Guinea's performance in each sector depended on the amount and level of political and bureaucratic attention it received and the extent to which government could clarify its objectives.

A clear statement of Papua New Guinea's policy on foreign investment is to be found in the National Development Strategy, put out in 1976 shortly after Independence.

> A number of large scale natural resource based (foreign) investments will be encouraged to raise revenue. With respect to investment in manufacturing and service sectors, the Government recognises the need for further growth and that further foreign investment will be required. Such investments will be encouraged if they:
>
> - benefit consumers through lower prices;
> - provide additional employment;
> - provide additional government revenue;
> - improve the balance of payments.
>
> On the other hand, investments that would result in considerably higher domestic prices (or require considerable subsidies) will not be admitted
>
> Such projects would either have serious inflationary effect, or reduce the Government's ability to pursue its priority programmes in rural areas (Papua New Guinea 1976:13-14).

This statement illustrates the clarity of objectives for mining and petroleum projects in comparison with the other sectors. The last two sentences indicate a slight benefit maximizing bias as does, more clearly, the following quote:

> Foreign investment will be encouraged in priority areas where national resources of capital or skill are not available, and will be excluded in areas where they are available. In assessing the potential benefits of a

> project, Papua New Guinea is concerned to secure a positive net present value contributed to the economy by additions to tax revenue and to value-added, minus any costs involved in financial incentives or provision of infra-structure (Papua New Guinea 1978b:34).

The logic of such statements of national policy, drafted by the central economic ministries, is difficult to dispute; in specific projects, however, a multitude of interpretations and exceptions have often been invented.

6. Expectations versus experience in foreign investment flows

Comparison of expectations and experience of foreign investment flows is difficult to measure as governments rarely quantify the foreign investment flows they expect. We can, however, look at the expected versus actual production, government statements on various foreign investment projects and other pieces of relevant information to build up a general picture.

Table 7 compares the government's production forecasts made in September 1979 with those made in July 1984 as well as with actual performance.

The most striking feature of Table 7 is the comparisons relating to the timber industry. The differences between the 1979 and 1984 figures are largely due to the failure to realize expected foreign investment. The deferral of the Vanimo project, for example, explains most of the decline in expected woodchip and plywood production. The lower expected sawn timber production represents a downward revision of new foreign investment in general. The original expectations may well have been optimistic, but there is considerable government frustration with its inability to attract foreign investors into the forestry industry. The expected forestry production shortfall in 1988 represents over 12 per cent of total 1980 exports at 1980 prices.

The unexpected fall in tuna exports reflects a withdrawal of foreign investment in the tuna fishing industry in FY1982/83. Prior to 1979 the government had been expecting a huge increase in tuna exports from foreign investment which did not materialize. For copra, cocoa, coffee and oil palm actual performance was close to 1979 expectations. By 1984, however, there were more optimistic expectations for oil palm, and more pessimistic ones on cocoa production. By 1984, performance in rubber was well below expectations, and the 1984 forecasts anticipated half the production forecast in 1979.

These figures do not really tell the story in the tree crops sector, however, as by 1979 many people's expectations of

Table 7 Expected and actual production of major non-mining exports

Expected production September 1979	1981 (forecast)	1983 (forecast)	1986 (forecast)	1988 (forecast)
(000 tonnes unless otherwise stated)				
Copra	85	85	85	85
Cocoa	29	31	42	55
Coffee	48	51	59	60
Oil palm	54	78	90	90
Rubber	5	6	9	10
Logs (000 m^3)	1,110	1,800	2,500	2,240
Sawn timber (000 m^3)	55	55	273	361
Woodchips (BDT)[a]	125	205	295	395
Plywood (000 m^3)	8	52	52	52
Tuna	35	35	35	35
Prawns (tonnes)	1,200	1,200	1,200	1,200

Expected or actual production, July 1984	1981 (actual)	1983 (actual)	1986 (forecast)	1988 (forecast)
(000 tonnes unless otherwise stated)				
Copra	102	79	85	80
Cocoa	28	26	31	36
Coffee	47	53	52	56
Oil palm	44	78	112	120
Rubber	5	3	4	5
Logs (000 m^3)	743	1,019	1,240	1,320
Sawn timber (000 m^3)	24	20	30	40
Woodchips (BDT)	95	100	162	162
Plywood (000 m^3)	2	1	2	2
Tuna	30	1	21	32
Prawns (tonnes)	1,078	1,141	1,250	1,300

[a]BDT bone dry tonne

Source: Finance Department, Port Moresby.

future production had already been lowered. Table 8 shows production in the mid-1970s for certain crops broken into smallholder and plantation production. In all cases smallholder production increased and that of plantations, which are largely foreign owned, remained static or declined. This occurred because of foreign disinvestment which has left many senile trees and

Table 8 Agricultural export crop production (tonnes)

	Coffee			Cocoa			Copra			Rubber		
	Planta-tion	Small-holder	Total	Planta-tion	Small-holder	Total	Planta-tion	Small-holder	Total	Planta-tion	Small-holder	Total
FY1974/75	12,569	26,011	38,580	22,396	12,655	35,051	76,512	55,890	132,402	5,286	269	5,555
FY1975/76	12,871	29,318	42,189	18,984	12,856	31,840	81,792	58,822	140,614	3,774	491	4,265
1976	14,653	33,377	48,030	16,904	12,542	29,446	69,797	50,257	120,054	3,868[a]	554[a]	4,422
1977	11,173	26,147	37,320	14,574	13,872	28,446	71,533	67,750	139,283	..	..	..
1978	14,252	33,218	47,470	15,356	15,393	31,249	55,753	63,451	119,204	3,568	417	3,985
1979	15,927	33,068	48,995	12,557	15,000	27,557	74,117	71,253	145,370	3,644	533	4,177
1980	17,275	36,708	53,983	13,318	14,231	27,549	68,677	71,671	140,348	3,579	619	4,198
1981	15,273	35,132	50,410	13,352	18,630	31,982	66,614	73,255	139,869			
1982				10,719	16,121	26,840	55,891	82,518	138,409			
1983				8,215	18,503	26,718	54,453	75,780	130,233			

[a]1976/77.

Source: Department of Primary Industry, Inspection Records, Coffee Industry Board, Rural Statistical Bulletin, Appendix to the Report by the Committee of Review into the Plantation Redistribution Scheme.

generally rundown plantation assets. It was clearly government policy to promote smallholder development to the relative neglect of plantations but successive governments did not wish to see the level of foreign disinvestment in plantations that has in fact occurred. The Somare Government in 1979 was sufficiently concerned to set up a Committee of Review into the causes of this.

Another indication of expectations versus experience can be gained from the Finance Minister's 1981 Budget Speech delivered in early November 1980 (pp.5-6).

> I would like very briefly to outline progress on some of the major resource development projects.
>
> The K15 million Kapuluk project ... involves log export, a chipmill and extensive reforestation ... the timber permit is expected to be issued in 1981.
>
> Further back in the scheduling is the K50 million Vanimo timber project in the West Sepik Province. Negotiations are presently underway for this resource.
>
> In the New Ireland Province, we have the K25 million Kavieng tuna cannery.... Construction should start early in 1982 and production commence by 1985.
>
> There are quite a few large scale agricultural projects in the pipeline, however most are held up by a lack of land ...
>
> Projects showing pleasing progress include the Ramu sugar project, ...
>
> However, both the rice project in the Mekeo area and the rubber and cocoa project at Cape Rodney are being held up by the unwillingness of the local people to make their land available.
>
> The Porgera gold prospect in the Enga province looks very promising. The Government is hopeful that a final feasibility study will commence by mid-1981.
>
> The Frieda River copper and gold project ... has still some way to go ... the Government is hopeful of a final feasibility study beginning in 1982 ...

Excluded from this quote were the nationally owned projects. Of the eight foreign investment projects mentioned two proceeded broadly on schedule, two look likely to proceed though well behind the schedule envisaged above (two to three years in each case), and four have been shelved or dropped completely.

Admittedly on imperfect evidence, but with the support of a long period of general observation, we conclude that successive governments have been disappointed with the level of foreign investment in forestry, fishing and agriculture and reasonably satisfied with that in mining and petroleum.

There have been few manufacturing projects that have seriously caught political attention with the notable exception of the ill-fated cement project. Successive Papua New Guinea governments have understandably had fairly low expectations for this sector.

7. Papua New Guinea's comparative advantage

An understanding of Papua New Guinea's comparative advantage is necessary to explain both the past and existing patterns of investment and the government's investment policies. The subject will be discussed in only general terms.

Papua New Guinea has plentiful minerals, forests, fish, rainfall and sufficient arable land relative to its population. Papua New Guinea's exports reflect this, being dominated by copper, gold, coffee, cocoa, copra, logs, sawn timber, tuna and oil palm — which together comprised over 95 per cent of exports in 1982. Domestically, the country's natural resources have meant that in most areas of the country people can obtain sufficient food, clothing and shelter for relatively little effort. Papua New Guinea can also be considered fortunate in its location, near the rapidly expanding Asian and Pacific markets. The countries in the Association of South East Asian Nations (ASEAN) have growing incomes and a population of around 250 million: Australia, Japan, Hong Kong and Korea are also nearby. Many of these countries provide good examples of sound management and economic success.

The negative side of the story is that Papua New Guinea provides a small domestic market for local production, much smaller in fact than its population of 3 million would imply. The average income is only around US$800 per head, and this is inflated by a transitory expatriate community, Australian aid and the country's mineral wealth. Only one-eighth of the economically active citizen population receives a wage or salary, and the access of the remainder to cash incomes from various kinds of self-employment is intermittent and limited. Equally important, the population is spread throughout a wide geographical area that is poorly connected by road and often separated by high mountains or sea. This separation is responsible for the linguistic and ethnic fragmentation of the country: over 700 languages are thought to be spoken by different groups in the Melanesian population. The two main urban centres are separated by a mountain range: to connect them by road would apparently cost in excess of K100 million, and there are currently no plans to do so. It is often cheaper to ship goods from Japan or Australia to each of the Papua New Guinea urban centres than it is to ship between them. Papua New Guinea is not one market but a collection of many very small ones.

Urban wages in Papua New Guinea are higher than those in comparable countries. Table 9 provides an international comparison

Table 9 International comparison of monthly earnings, 1976[a]

Country	Currency unit	Exchange[b] rate	Non-agricultural sectors		Agricultural sector	
			Earnings in local currency[c]	Earnings in US dollars[c]	Earnings in local currency[c]	Earnings in US dollars[c]
Algeria	Dinars	4.3590	656.9	150.70		
Burundi[d]	Francs	78.7500	5,028.0[e]	63.80	3,554.00[e]	45.10
Kenya	Shillings	8.3100	905.9[e,f]	109.00	312.90[e,f]	37.70
Malawi	Kwacha	0.9074	44.94[e]	49.50	10.98[e]	12.10
Mauritius	Rupees	6.6390	346.13	52.10	339.41[f,g]	51.10
Nigeria[d]	Naira	0.6267	42.70	68.10	34.22	54.60
Sierra Leone	Leones	1.1748	49.15	41.80	..	..
Zambia	Kwacha	0.7934	131.00[e]	165.10	50.00[e]	63.00
Bolivia	Pesos	20.0000	1,750.00[e]	87.50	..	..
Costa Rica	Colones	8.5700	1,487.00	173.50	520.00[f,h]	60.70
Cuba	Pesos	0.8290	143.00[e]	172.50	135.17[e]	163.10
Guyana	Dollars	2.5500	70.58	27.70	54.47	21.40
Honduras	Lempiras	2.0000	253.48	126.70	..	..
Nicaragua	Cordobas	7.0260	974.11	138.60	..	..
Peru	Soles	69.3700	6,805.60	98.10	..	..
Uruguay	Pesos	4.0000	..	..	262.25	65.60
Venezuela	Bolivares	4.2900	1,816.00	423.30	..	..
Korea, Rep. of	Won	484.0000	62,362.00[e,f]	128.80	35,284.00[f]	72.90
Malaysia	Ringgits	2.5400	..	..	130.00[i]	52.20
Philippines[d]	Pesos	7.5100	413.00	55.00	135.80[f]	18.00
Sri Lanka	Rupees	8.8280	311.90	35.30	130.83[i]	14.80
Fiji	Dollars	0.9415	..	..	108.75	115.30
New Caledonia	France (CFP)	248.4900	..	..	24,523.00[f]	38.70
Mean				114.05		59.09
Papua New Guinea	Kina	0.8120	144.00	177.00	40.00	49.30

[a] In some cases, source data refer to hourly, daily or weekly earnings. These have been converted to monthly rates, assuming an eight-hour day, and 21.66 days, or 4.33 weeks per working month. Wage-earners only except where otherwise indicated.

[b] Units of national currency per US dollar. Market rates at end year are used wherever possible.

[c] No non-cash earnings received or included, except where indicated.

[d] Data are for 1975.

[e] Including salary earners.

[f] Including the value of payments in kind.

[g] Plantation and fishing workers only.

[h] Minimum rates.

[i] Plantation workers only.

Source: Colclough and Daniel (1982).

of monthly earnings in twenty-three developing countries for 1976. There are enormous data problems with cross country comparisons — from different methods of data compilation to different tax systems and most importantly to the problems of conversion into a common currency. Since more than half the countries in the list were at significantly higher levels of GDP per capita in US dollars, however, and since most achieved independence before Papua New Guinea and will have a more educated population, the results indicate mugh higher urban wages in Papua New Guinea than in countries with similar levels of per capita productivity. From Table 9, on the other hand, the average agricultural wage in Papua New Guinea is not high relative to similar countries: the problem lies with urban based industries.

In terms of human resources Papua New Guinea was one of the world's least developed countries at Independence. Experience in the use of complex equipment and particularly in management is still limited. Skilled Papua New Guinean labour therefore attracts a high scarcity premium and the shortage is filled by expensive expatriates. The skills are available, but the cost is very high.

Urban unemployment in unskilled and semi-skilled categories is high though this does not depress wages to internationally comparable levels. There exists a system of minimum wages which effectively determines the average unskilled wage at a level above that which labour demand and supply conditions appear to indicate. It is possible however, that other pressures exist to keep wages high, and the same pressures might cause considerable industrial dislocation if a central wage fixing system did not exist: the continual comparison between wages paid to citizens and wages paid to expatriates; some strong individual unions, (miners, stevedores, public service); many senior politicians have strong union affiliations in a situation where the balance of political power is tenuous and changeable; and it is natural that the wage to productivity ratio will be higher for unskilled workers in Papua New Guinea than, for example, Hong Kong, as people in Papua New Guinea generally have the option of returning to village life where basic necessities are available.

Virtually all land (97 per cent) is under customary ownership where title is determined by historical occupation and is not effectively registered, making commercial loan finance impossible. Moreover, in many areas, problems in determining the true owners of land can frustrate its development, or make occupiers disinclined to develop it for fear of attracting an ownership dispute. Most land-based activity in Papua New Guinea faces at minimum long delays.

Papua New Guinea is vastly over-regulated as a result of, first, inheriting its regulations from an over-regulated colonial ruler; second, the introduction of some paternalistic controls to protect the people; third, a resort to regulations to make up

for poor administrative capacity; and fourth, regulations made complex by the limited administrative capacity of the public service. Dealings with government take considerable time, even to obtain simple approvals. The main regulations affecting land, labour and capital are described in the next section. They provide a barrier to the entry of new firms and often to the expansion of existing ones, and raise costs and prices: for example, there is potential for monopolistic mark-up pricing behaviour by existing firms, and Papua New Guinea experiences high construction costs and property rentals largely attributable to land laws.

Papua New Guinea is partly locked into historical trade patterns by inertia: imports have traditionally come from the highly protectionist Australian market along expensive trade routes. The dominance of three large trading firms in the wholesale and retail sector has reinforced this.

A final point is that the country's imports equal approximately half of its GDP. Industries import more of their basic requirements than they would in other developing countries.

Of the problems listed some are capable of short-term solution — action can be taken to decrease government regulation and perhaps register land title although change will not be easy to effect (possible measures are discussed in the next section). For others, it may take considerable time to improve the movement of goods within the country, lower comparative real labour costs and improve economic linkages. Any offsetting government subsidy, therefore, may be costly, over many years. It may be preferable if government industry incentives, therefore, reinforced the nation's comparative advantage rather than worked against it. The initial logic of saving the country money by import substitution can rebound if a project is a net foreign exchange loser for many years.

Papua New Guinea has a comparative advantage in projects that extract and process its natural resources, projects that use them as an input to manufacturing, and projects that provide goods and especially services to its small market in industries that have 'natural' protection. Papua New Guinea may be able to efficiently manufacture goods not related to its natural resource base for export, but will generally not be able to do so simply to replace imports on the small domestic market.

8. The general regulatory framework

Potential foreign investors are concerned not just with regulations that govern their entry and right to operate in a country, but also with those that govern their main factors of production — land and labour — and their general cost structure. They are also concerned with the structure and organization of of government with which they have to deal.

(a) NIDA.[1] Since the early years of the first national government (Overseas Development Group 1973:22-27, 85) Papua New Guinea has followed the practice of explicitly defining activities in which beneficial foreign investment is encouraged, and those in which it is not. The practice was formalized in the National Investment and Development Act of 1974, which saw the birth of NIDA — the National Investment Development Authority.

All foreign businesses which commenced their operations after 6 December 1974 are required to register with NIDA prior to starting business. Foreign businesses operating before this date have only to notify NIDA of their existence, but are subject to discretionary 'call' which would require them to register. Where such a notified enterprise as just described is taken over, NIDA is much more likely to require the new owner to formally register. A foreign enterprise is broadly one where 26 per cent or more of the voting power is held or controlled by persons who are not citizens. Enterprises which are not corporations are considered foreign if one or more of the partners or proprietors are not citizens.

The most obvious (though not necessarily the most important) representation of the country's foreign investment policy is in NIDA's list of investment priorities. The list has been altered from time to time but, for example, in 1982 'Priority' activities for foreign investment included large-scale mining and petroleum exploration or production, forestry and integrated forest industries, ship building and repair and large-scale deep-sea fisheries. 'Open' activities in which foreign investment would be welcomed included most large-scale agriculture (though with a restriction to favour nucleus estates in the case of established export crops) and secondary industries, especially further processing of raw materials for export. Open activities also include technical and professional services. 'Reserved' activities in which foreigners would not be allowed to establish or take over businesses included alluvial gold mining, coffee growing (other than robusta, with arabica the main component of the country's production), coastal fisheries, all land transport, and virtually every type of activity potentially suited to small-scale Papua New Guinean enterprise.

NIDA has a full-time Secretariat which processes the application for registration. Copies of the application and a project study, completed by the foreign investor and outlining the benefits to Papua New Guinea of the project, are circulated to all relevant

---

[1]Comments on NIDA in this section have benefited greatly from a 1980 critique of NIDA prepared by Roland Brown, then working for the Commonwealth Secretariat (now with the United Nations Centre for Transnational Corporations). His critique was prepared for the Papua New Guinea Government and is unpublished.

government departments and provincial governments. Once comments are received a recommendation is made to the NIDA Board, which nominally comprises the heads of government departments most concerned with investment. The Board then makes a recommendation to the Minister for his final decision.

Schedule 1 of the NIDA Act lists guidelines for the evaluation of applications. It mentions the investors' past experience and the contribution the project can make to employment creation, government revenue, the acquisition of useful skills, etc. To gain registration an enterprise must agree to what is now a standard set of conditions covering local equity participation, a training program for Papua New Guinean workers, use of local supplies, the protection of the environment and assistance to citizens in establishing businesses that could provide inputs to the new project.

NIDA was intended to do much more than simply register new foreign enterprises. Until very recently, NIDA's somewhat contradictory functions were to coordinate, promote, regulate, control and supervise foreign investment. (In 1983 the NIDA Act was changed to remove the investment promotion functions of NIDA.) Any change in an enterprise's activities requires NIDA approval, as do '... any agreements or arrangements to which a foreign enterprise is party under which payments are to be made in foreign exchange by or to an enterprise in Papua New Guinea.' (From Part IV of the NIDA Act.) Thus all overseas marketing, loan, management, royalty, etc. agreements require prior NIDA approval, which is given by the Minister after receiving a recommendation from the Board.

Many of the principles behind NIDA's formation commanded wide support at the time, but the practical problems it has encountered have been enormous, including the duplication of the existing functions of government departments and long delays in processing investment applications.

It was initially hoped that NIDA would be a 'one-stop-shop' for foreign investors. When it was established, however, the existing powers of other government departments and agencies were left intact. To transact an overseas loan, therefore, both central bank and NIDA approval are required, presumably to check the same things. An expatriate housewife wishing to babysit in her spare time must receive both Labour Department and NIDA approval. A forestry company must separately receive a timber permit, given only after very lengthy negotiations, and NIDA approval.

A sample analysis prepared by the NIDA Secretariat shows that up until mid 1981 the average time taken from initial application to NIDA Board meeting was 194 days with a further period of about six months before registration was effected.

Port Moresby accounting and legal firms, who act for most new foreign investors, inform their clients that they should expect a delay of about one and a half years between initial application and receiving NIDA registration, together with their non-citizen work permits and lease on land (both discussed below).

The nominated members of the NIDA Board seldom attend, since the majority of applications before the Board are from small investors. The Board has become a meeting of relatively junior officers. This, plus the fact that the Board includes non-government representatives, precludes the Board from playing any significant role in government's major investment decisions, which are usually dealt with by inter-departmental committees.

The NIDA conditions of registration have little substance in them, largely duplicating the requirements of various government departments. Perhaps the most important condition, the one requiring certain levels of equity to be held by Papua New Guinean citizens within a period of time, has encouraged a non-productive class of 'front-men'.

We stated above that only foreign enterprises established after 1974 had to register. With the long delays and disincentive effect of NIDA this has created a 'ring fence' of protection around long established foreign enterprises in areas where citizens do not possess the necessary money and/or expertise.

A final criticism stems from the case-by-case approval exercised by the Minister. In the past, depending on the Minister then responsible for NIDA, most NIDA Board recommendations are generally accepted, or alternatively, generally rejected by the Minister (depending on whether the Minister belongs to the 'benefits', 'production' or 'nationalist' school). NIDA decisions have consequently gained a reputation for being arbitrary and inconsistent.

Perhaps some of the above can be better understood by a brief look at the history of NIDA's conception:

> Policy in relation to terms and conditions for smaller foreign investments was never given the high level attention of minerals policy, and a number of basic questions remained unsettled .... There were extremely complex policy and administrative questions to be resolved.... The hiring of (management consultants) W.D. Scott meant that the major effort went into building an institution (NIDA) rather than into settling policy. The administrative questions were much less demanding politically and intellectually than the policy questions (Garnaut 1981:197-98).

(b) Land. Within Papua New Guinea freehold land accounts for about 1 per cent of all available land, mainly in the plantation sector; leasehold land alienated by the State on lease terms ranging up to ninety-nine years accounts for about 2 per cent of available land; and all other land has customary title, related to historical occupation, which is recognized in formal Papua New Guinea law (see Knetsch and Trebilcock 1981).

All foreign owned plantations started before 1974 are subject to compulsory acquisition (with compensation), which seriously lowers the incentive of existing investors to maintain much less improve their investments. These matters will be discussed in Section 12 below.

For leasehold land, of relevance to all foreign investors wanting urban land, a recent study noted that '... the system is one in which each transaction, and every step in each transaction, must be approved. The government ... chooses the recipients of the (new) leases, largely determines the use to be made of each allotment of land, passes judgement on every improvement and on each subsequent alteration to all improvements and changes in lease conditions, approves all transfers, and requires that all mortgages be approved. All of these controls are in addition to such usual administrative requirements as drafting town plans ... all are done on what amounts to a case by case review and approval basis' (Knetsch and Trebilcock 1981:102-6). The power of approval rests with the Lands Minister and most past ministers have delegated little of this power. There have been instances of people waiting years for the Minister to approve a simple one year sub-lease of a single flat.

In attempting to develop the remaining 97 per cent of land for commercial use, many difficulties and delays arise for both foreign and national investors. Historical occupation is difficult to prove and there can be more than one forceful (legitimate or otherwise) claimant; banks do not have a piece of paper certifying title against which to lend; and the occupants may feel that success would promote competing claims for presently unchallenged title. To overcome these problems the government is attempting to introduce legislation that would enable customary title to be registered.

For foreign investors, current regulations prohibit direct dealings in land with customary owners. Land is an integral part of the village community and it is widely agreed that it whould not be permanently alienated. To use such land, therefore, foreign investors must await negotiations with landowners leading to government acquisition, and then the issue of a lease. This process can take a very long time. For land intensive investments, such as those in agriculture and forestry, the constraint is often overriding and promising projects have often been stopped.

A foreign investor coming to Papua New Guinea will have some difficulty identifying available land, but this is not a major constraint. More important are the legal and administrative constraints on acquiring, improving, transferring and changing the use to which the land can be put. A huge backlog of applications for government approvals testifies to the difficulties.

(c) Labour. Having come to Independence in many ways unprepared, Papua New Guinea has a severe shortage of skilled national personnel. Unemployment in Papua New Guinea rests almost entirely with unskilled workers. Employment in unskilled occupations for expatriates is banned. In those categories where skilled manpower is in short supply the employment of non-citizen workers is allowed. It requires submission of a comprehensive training and localization program for the firm as a whole — a number of expatriate positions are then approved for three years on the basis of this. Each individual non-citizen worker then requires prior approval from the Labour Department, which ensures the individual's qualifications suit the position, and from the Migration Office, who check that the individual is not an 'undesirable'. Specific approval is required if a non-citizen wants to change jobs. Few complaints have been made about the principle of monitoring non-citizen employment (from the questionnaires referred to in (f) below). The concern is more with the delays involved.

(d) Other regulations. Economic activity in Papua New Guinea is subject to a wide array of regulations covering everything from transport and building standards to the variety of licences required by a Papua New Guinean to establish a business. Many of these regulations are often ignored because of poor enforcement but some, notably the regulations on coastal shipping, which specify which boats should call at what ports and how often, and the air transport regulations, which prevent competition on many of the air routes, are said to increase the costs of doing business in Papua New Guinea significantly. These matters are difficult to quantify, however, and may not necessarily compare unfavourably with the cost increases induced by other countries' restrictive regulations.

Many of Papua New Guinea's regulations were copied automatically at Independence in 1975 from Australia, a country with a more sophisticated administration. Since Independence new legislation and regulations have come into force and before late 1983, no assessment was made of the combined effect of these regulations on those being regulated.

In late 1983 the government formed a Government Regulation Advisory Committee (GRAC) whose Terms of Reference required it to '... ascertain those areas of Government regulation and administration which are viewed as an impediment to the establishment and continued operation of a business in PNG'. The GRAC has now recommended to the government appropriate legislative and administrative changes, but at the time of writing (mid-1985) no action had been taken.

On the positive side all governments since Independence have been committed to a strong and convertible currency and there are very few impediments to bringing money in or sending it out. Within the liberal policy framework the central bank normally requires a debt to equity ratio of 3:1 or less, and overseas borrowings must generally be for a minimum of three years. The tax system is also relatively efficiently administered and not dissimilar to that found in other countries. These factors, plus the poor administration of many otherwise potentially burdensome regulations are to be weighed against the delays imposed by the regulations on land, labour and capital (that is, NIDA) and the high costs of all forms of transport within Papua New Guinea which are partly due to the restrictions on competition.

(e) The structure of government. There are three tiers of government in Papua New Guinea. As well as the national government and local councils, in 1976 the country was divided into nineteen provinces, each with its own provincial assembly and executive council. The provincial governments have concurrent power with the national government in many areas such as agriculture, forestry, town planning, labour and education.

The Organic Law on Provincial Government requires only that the relevant provincial government be consulted by the national government concerning large foreign investment projects. The Constitution has in a number of recent cases been interpreted as saying such consultation must be 'meaningful', however, and this leverage, plus the obvious practicalities of the situation, means that opposition from a provincial government can be fatal. Potential investors must make contact with both the main tiers of government in a way that avoids damaging the sensitivities of of either. Projects have been seriously delayed and even discouraged because one tier wished at an advanced stage to impose its individual requirements on a project that was being largely negotiated with the other (for example, the Star-Kist fishery project on Manus was abandoned after belated Provincial Government opposition — see Section 13).

A main complaint of new investors is the lack of a government agency that can effectively guide them through the government maze. NIDA was originally intended to play this role but given its wide regulatory and screening responsibilities it has always been difficult for both NIDA and the investor to see it in this role. This gap in the market has been filled by the legal and accounting firms whose costs are prohibitive for small investors and whose knowledge is inevitably limited by not being inside government. The promotional functions of NIDA have recently been removed and given to the new Department of Industrial Development: it is too early to tell what effect this will have.

NIDA was also supposed to coordinate the views of government on an investment proposal so that one effective view is coherently

put to the investor, but it does not have the influence with government departments to do this.

The lack of a 'guide' and 'coordinator' are strong drawbacks to attracting beneficial foreign investment to Papua New Guinea.

It is worth noting in passing the Papua New Guinea Investment Corporation. Recognizing a lack of Papua New Guinean capital and entrepreneurship it was created in the early 1970s by statute to acquire equity in foreign owned ventures and hold this in trust for later sale to private citizens. It is of little policy interest, being mainly a passive investor in existing enterprises rather than an active partner in new joint ventures. It can be argued that it has facilitated an outflow of foreign investment from Papua New Guinea, buying out those investors who wish to leave the country (e.g. the foreign owners of the Port Moresby bus company).

(f) The problems. Two recent questionnaires have been sent to existing national and foreign investors in Papua New Guinea, one in the course of an Institute of National Affairs (INA) study (Trebilcock 1983) and the other by the GRAC. Both found a pervasive concern with how to approach government and whom to approach, the interminable delays in obtaining government approvals, the difficulties faced interpreting government policy, and in the high-level case-by-case decision making. The GRAC questionnaire asked whether government administration and regulations were a greater concern than the physical and economic constraints discussed in Section 7, and received a strongly affirmative answer. Even allowing for the natural investor dislike of the regulations to which they may be subject and the bias in only sampling existing investors, the consistency and strength of the results support the view that existing government regulations seriously delay and impede investment. The problem is exacerbated by the lack of guidance on government regulation or organization, and the lack of administrative and policy coordination among government departments.

It is difficult to quantify the effects of government regulations or to substantiate the charge that such regulations are excessive or poorly administered. Rather bold statements will therefore be made on the basis of the above questionnaires cited, interviews with representatives of the private sector, a review of the numerous INA and other papers on the subject, the author's Papua New Guinea experience and *a priori* reasoning from the capacity of the Papua New Guinea administration and the complexity of the regulations.

First, the high cost in terms of time and expensive professional advice to obtain the necessary approvals must frustrate and eventually deter some foreign investors — particularly the smaller ones. Many existing investors in Papua New Guinea say they do not consider entering into new activities because this would bring their entire operations under NIDA scrutiny. Second, the combina-

tion of pervasive red-tape but poor enforcement causes a bias towards investors who are willing to flout the rules, or corrupt the rulers — a serious problem when a country is trying to maximize its benefit from foreign investment. Not only is there non-registered expatriate labour, but there is developing a non-productive class of Papua New Guinea 'front' people to minimize detection under the NIDA Act. Finally, since the regulations have an obviously greater effect on new investors than existing ones they create a high barrier to entry, thereby limiting competition, creating oligopolistically controlled industries with presumably higher costs than otherwise.

This last point is worth stressing. The biggest hurdles are for new investors. An existing investor wanting only to operate in its NIDA-registered activity has fewer problems for three reasons. Even though NIDA labour and land approvals may be required on a regular basis and involve delays, there is never any question of closing down in the interim. Second, an investor with established staff can more easily afford to have people with good contacts acquire the continuing approvals needed. Third, government agencies that are supposed to monitor continuing functions (like health, transport, safety, etc.) rather than the initial approval functions (like land, labour and NIDA) do not have the experienced staff to carry out inspections. The result is a regulatory system that is difficult to enter but relatively easy to stay within.

There has been a noticeable increase in the amount of investment in the hands of a few existing firms. Many firms leave, but relatively few are coming in as the existing firms expand by acquisition.

(g) Some suggestions for the future. Three sets of suggestions follow from the above discussion. These are not made with a view to making things easier for foreign investors, although in some cases this would be the effect. Rather, they are made with a view to assisting the Papua New Guinea Government better achieve its own objectives.

First, there is a need to guide effectively foreign investors through the government maze and coordinate government's approach to them. To guide investors, an independent arm of government could be established whose only function is as a point of contact for foreign investors and a provider of information to them about the law, government regulations and policy and about whom to see. Such an agency should have no other executive functions and would not be asked to advise government in any way as to the suitability of any investment or potential investor.

To coordinate government's response to foreign investment proposals and the granting, where appropriate, of the necessary approvals, there could be established a high-level inter-departmental committee to deal with each project designated as being of

sufficient importance to justify such efforts. The Committee would comprise senior representatives of the most affected departments. It is difficult for a statutory authority or an individual department to coordinate government — a committee charged with the necessary responsibility is the way government generally functions best.

The second set of suggestions concerns the government's regulations in general. Some means for a continuing review of the regulatory framework facing businesses is now required. When reviewing any specific regulations the government's ability to administer and enforce them is crucial. Many existing regulations are defended in terms of their principles, not their practice. An extremely efficient administration can make very complex regulations workable: the opposite is also certainly true. In other areas the benefits of regulations can be reduced by lack of enforcement, especially after those being regulated realize this. The Department of Labour puts substantial resources into approving in Port Moresby quite complex training and localization plans yet, by its own admission, does little inspection. There could well exist a world of difference between the contents of an approved training program and the extent of training actually undertaken.

The third set of suggestions apply to the specifics of the existing regulations. In the case of NIDA, at minimum the Act could be amended to remove duplication: for example, the power to approve transactions and agreements which are already scrutinized by the central bank and the tax office, the power to register industries that already require a licence to exploit a natural resource and the ability to register large foreign investment projects that could better be analysed by the inter-departmental committee. This leaves a group of small projects some of which will be effectively scrutinized by the work permit system of the Labour Department, and which would arguably be better scrutinized by a less ambitious authority relying on less ambitious legislation. Indeed, the preferred solution may be to liquidate NIDA and have this residual group of investors require some formal approval from an existing government department.

Opportunities for significant gains also exist in de-regulating matters relating to land. For example, there seems little need for the Minister for Lands or his designate to approve short-term sub-leases, mortgages with approved financial institutions, or the use to which individual plots of land can be put given the existence of town-planning zoning regulations.

To speed up the establishment of new investment projects consideration could be given to allowing new investors to submit comprehensive training and localization programs *after* operations commence, when overseas investors are familiar with Papua New Guinea conditions (say within one year). New investors could be restrained by laws which ban expatriates working in certain jobs

and earning below a certain wage. Indeed, such constraints could generally substitute for specific Labour Department approval of each expatriate employee, (the individual approval to recruit and the issue of individual work permits), while maintaining the general framework of approval of each firm's training and localization program. The Labour Department could then concentrate its scarce resources on approving and enforcing such programs, and assisting industry with their implementation.

Questions of de-regulation can be complex. We have attempted here to make some simple suggestions and indicate the scope for achieving a given objective without the need for step by step and often duplicated controls.

9. Evolution of general fiscal incentives

In the decade prior to self-government the policy of the colonial administration was mainly influenced by the need to take quick measures to stimulate economic activity in Papua New Guinea once it was realized that Independence was imminent. In our terms, the measures adopted stressed a 'production-maximizing' approach.

A pioneer industries ordinance gave new enterprises a five year tax holiday. Personal and corporate tax rates in general were extremely low and there was no withholding tax on remitted dividends. Very generous terms were given for the exploitation of natural resource projects, evidenced by the 1967 agreement which gave Bougainville Copper Ltd an effective ten year tax holiday for the extraction and export of gold and copper concentrate. Agricultural industries were allowed an immediate write off for new investment expenditure. The colonial administration also on occasion provided substantial amounts of costly infrastructure for major private investments.

Self-government in 1973 saw some necessary changes. In 1972 some 60 per cent of the Papua New Guinea budget was financed directly or indirectly by Australia: it was clear that an independent Papua New Guinea would not continue to receive this level of financial support. Revenue needed to be raised. First, a gradual increase in personal tax rates to average world levels was imposed. Company tax rates were raised to 35 per cent, and a new 15 per cent withholding tax on remitted dividends took the effective tax rate for a foreign investor to 46 per cent. When the Australian company tax rate went from 46 to 48 per cent in the late 1970s Papua New Guinea increased its company tax rate to 36.5 per cent. The Pioneer Industries Ordinance was repealed in 1974 and substantial items of infrastructure were no longer provided free to foreign investors. Finally, the BCL Agreement of 1967 was renegotiated in 1974, as discussed in Section 10, removing its

tax holiday and also making the company's profits above a certain level subject to higher rates of taxation than normally prevail. The 100 per cent immediate allowance for capital expenditure incurred on agricultural investment still remains, however, illustrating the continual commitment of all political groups to the rural sector.

It would appear that the above changes were made to increase revenue rather than as part of a carefully considered private sector investment policy. There were many pressing priorities for the new government, and the provision of replacement fiscal incentives did not rate highly. From a private investment policy viewpoint the government felt two areas were of much higher priority. First, considerable effort was put into policy for the mining and petroleum sectors. This followed work on the BCL renegotiation, continued with negotiations with various parties interested in developing the Ok Tedi gold and copper project, and more or less concluded with standard tax and access legislation and model agreements for both petroleum and mining. This took a considerable amount of senior political and bureaucratic time. That it was worth while is indicated by the enormous revenue gains from each of the BCL renegotiation and the development of the Ok Tedi mine (see Statistical Appendix). All other sectors and projects put together could not have yielded similar incremental gains whatever the effort put into them.

Second, the government placed considerable emphasis on establishing a macroeconomic policy framework that would ensure economic stability. Not only was this necessary anyway in a small, open economy, but it was possibly the main incentive that the government could provide potential investors. Independence had generated a withdrawal of foreign investment from the country, mainly because of fears of impending economic and political instability. The achievement and maintenance of economic stability would make a major contribution to political stability. It would also help to even out the demand for the output of projects serving the domestic market. Even now, with a good track record of economic and political stability the Papua New Guinea Government regards the maintenance of macroeconomic stability as its most important contribution to encouraging private sector investment. (See, for example, the 1980 Budget Speech: 27.)

By 1977 there were still essentially no fiscal incentives for investors that applied across all sectors of the economy. The government would, presumably have been willing to discuss some limited measures with new investors, but there was nothing written down to pass immediately across the table. This is not to say that the matter was not fiercely debated. The 'production' school, from a base of the Industrial Development Division of the Department of Labour and Industry, were continually putting forward comprehensive incentive packages for discussion. They invariably included tax holidays and often referred to the establishment of industrial

estates. The 'nationalists' often supported such moves, looking for more incentives for national investors. Those adhering to the 'benefits' school successfully resisted. They argued that given Papua New Guinea's general cost structure, and its wages in particular, the country would only attract industries tied to a source of raw materials or the local market whatever the tax incentives: the benefits would mainly go to industries that would come to Papua New Guinea anyway. Incentives specifically tailored to the needs of the country were required. Exactly what these would be rarely surfaced because of other priorities and the time taken with the debate on more generous incentives.

Between 1977 and 1979, however, different incentive schemes began to emerge from the government. This was mainly due to changing priorities within government and the interest being taken in Papua New Guinea by investors who would promote a sensible discussion of the issues. These reasons were enhanced by continual pressure from the 'production' school coupled with political concern about what was perceived as a general lack of development.

The incentives were usually a generalization of what the government had been willing to do to encourage a specific investment project. They were invariably put to the National Executive Council (the NEC or Cabinet) by the Finance Department, demonstrating that the 'benefits' school was in control during this period.

(a) The 1977-79 incentives. The incentives developed during this period are listed in Appendix 3, which is a paper prepared in August 1979 for the Papua New Guinea-Australia Investment Promotion Conference.

The first set of incentives developed were the Export Incentive Scheme (EIS), the Infant Industry Loan Scheme (IIL) and the Feasibilities Studies Contribution Scheme (FSC).

The EIS largely arose out of the continuing debate on incentives between the 'benefits' and 'production' schools. The latter favoured industrial import substitution behind high protection and fiscal incentives, while the former argued for export-led growth based on the country's comparative advantage. The EIS was the 'benefits' school giving evidence of commitment to their strategy.

The EIS exempted from company tax 50 per cent of the profits from the growth in export sales in the current year over the average value of export sales for the preceding three years. New or growing industries would benefit rather than static ones. The scheme applied to a wide range of manufactured goods listed in the Appendix.

The IIL arose from negotiations to establish a tuna canning project in Papua New Guinea. The major lenders to the project asked for tax relief in the early years of the project because of potential debt service problems in the third and fourth years. The government felt this solution did not fit the problem and offered a loan facility that could, at the company's option, be drawn in the problem years. Such a loan would carry a commercial interest rate but would rank in terms of repayment behind other lenders. The initial concerns of the lenders were therefore met, and an unnecessary tax concession avoided.

The IIL is simply generalized from this offer. The tuna project did not proceed and the IIL was first applied to the Raw Sugar project, which eventually drew a US$10 million loan, a large burden on the budget. In the negotiations the limitations listed in Appendix 3 were established: for example, no dividends to be declared while an IIL is outstanding and the value of any loan limited to 15 per cent of the total capital funds required to implement the project.

The title 'infant industry' arose to counter the traditional argument for protection of the same name. If industries were viable, but needed only start-up assistance for the short-run, then the IIL should be sufficient. There was a strong fear of companies initially receiving import industry tariff protection and then discovering they could not survive without it. *Ex ante* it was hard to distinguish such industries from those with a genuine short-term need. The IIL would allow the companies to decide for themselves.

Finally, the FSC arose out of random requests from companies for such assistance and a realization within government that there was little prevailing information on which to base an investment decision. It was not expected to cost the government large sums of money. Under the FSC the government offers to finance 50 per cent or K100,000, whichever is less, of the costs of a feasibility study in return for an undertaking that should a project not result the government has access to all information. If a project did result, the money would become a loan or equity contribution.

In presenting early versions of the general list of incentives, three other items were added. First, there was a reference to the zero rate of duties on imported capital goods and the generally low rates on imported raw materials from which complete exemption could also be granted. Second, the government stated that it did not usually want equity in new projects, but that it would generally take it when requested to demonstrate its commitment to certain priority projects. Such a statement was meant to satisfy the perceived needs of all overseas investors. Finally, a general statement on protection policy was made (discussed in Section 14 below).

The paper describing these six measures was circulated in 1978 and represented the first statement of general fiscal incentives by Papua New Guinea. When it was released the government hoped that not only would the measures themselves be effective: it also hoped that the psychological impression conveyed to potential and existing investors would offset a growing feeling that the government was anti-investor and anti-growth. There was a large element of confidence-building involved.

The Finance Minister's 1980 budget speech added three more incentives to the list. The first was accelerated depreciation, whereby eligible investors — those in manufacturing, transport, communication, building and construction — could claim 20 per cent of an investment in the year of purchase as an additional depreciation allowance. In the 1982 budget the scheme was extended to those items of agricultural investment not benefiting from the existing 100 per cent write-off applicable only to a tightly defined set of agricultural equipment.

The second scheme was an offer to provide infrastructure for new projects in return for a negotiated user charge payable over the life of the project. This was really an offer of finance as the project sponsor was expected to construct the infrastructure and the user charge was to be calculated as a return on capital rather than levied on use. Repayment of the user charge would rank behind senior project debt and no shareholder guarantee was required. The scheme therefore reduced a project sponsor's front end risk. The user charge was to be based on a commercial interest rate for most projects, but a lower rate would apply for non resource-related projects located outside the main towns.

These two incentives were generalized from the mining industry. The Finance Department liked the idea of accelerated depreciation as it only deferred rather than reduced nominal tax liability (although it did reduce the present value of tax liability). The idea of providing infrastructure came directly from negotiations on the Ok Tedi project.

The last of the three incentives mentioned in the 1980 budget speech allowed a 200 per cent deduction from assessable income for wages paid to apprentices registered with the Apprenticeship Board. It was introduced to counter a declining trend in the number of new apprentices.

By 1980 the government had a range of incentives that had many advantages and few disadvantages. They could be manipulated to provide considerable assistance to a project: for example, the provision of infrastructure, accelerated depreciation and infant industry support could greatly improve the expected financial position for both shareholders and lenders. The incentives would not, however, subsidize profitable investors and ran little risk

of having large sums of money out laid or forgone for minimal benefit. Most importantly, they met the perceived needs of marginal projects in areas where Papua New Guinea had a comparative advantage. Finally, they provided evidence of the government's commitment to new private investment and so enhanced investor confidence.

The complaints against them are three-fold. First, some have commented on their potential cost. In most cases, however, the government infrastructure or infant industry loan can rely on the shareholder's assessment of the projects viability to ensure repayment, an assessment supported by the equity outlay (in infant industry loan to Ramu Sugar was very costly and not used on a viable project, however, even in these circumstances, it was the best of the measures available — see Section 12). The second complaint, with admittedly some justification, was inevitably that they did not go far enough. Another legitimate complaint, seldom raised at the time, was that they were biased towards promoting capital rather than labour intensive projects. If the incentives were appropriate to the real needs of investors, however, they would promote more employment than incentives not so geared. These last two concerns were partly addressed a few years later (see below).

(b) 1980-83. From 1980-83 debate and action on investment incentives gave way to universal concern with maintaining external balance in Papua New Guinea in the face of rapidly falling commodity prices and a sharp fall in BCL's output. The only measures introduced were to provide special depreciation allowances for the cost of conversion to alternative energy sources and a double deduction for coastal shipping costs. The latter measure arose because the government's policy of requiring a certain range and frequency of shipping services increased costs on many routes.

(c) 1983-84. External balance was maintained by cutbacks in government expenditure. By 1983 most commodity prices had recovered and the crisis had passed. Demand outside the mining sector had been seriously depressed, however, and the economy was suffering the effects of the cutbacks. Some firms had closed and unemployment had risen considerably. As a result the government began looking for measures to stimulate investment, while maintaining tight control over government expenditure.

Towards the end of 1983 the newly created Department of Industrial Development released a draft White Paper on Industrial Development which was strongly protectionist. A fierce debate raged with the Finance Department and the result was a compromise White Paper issued in February 1984 which, first, toned down the references to protection, and second, foreshadowed the introduction of various incentives. These incentives were probably a compromise between what the Finance Department wanted to do anyway to stimulate growth and the need to entice the Department of Industrial Development to amend the White Paper.

The first and most important was to allow for the first five years of production of a new manufacturing enterprise a tax rebate equal to a certain percentage of the minimum wage per employee — the percentage being 40, 30, 20, 15 and 10 per cent in each of the five years. This measure was politically popular given the increase in unemployment with the recession, recognized that high urban wages are a disincentive to employment, and offset some bias in favour of capital over labour associated with the earlier incentive schemes. Only firms whose average rate of protection on their output is less than 15 per cent higher than that on their inputs are eligible, so raising duties on inputs would now, in effect, cheapen labour.

The second measure for new manufacturing enterprises allows them to accelerate their depreciation to avoid paying tax until they have recovered their initial nominal investment. This measure is taken directly from the fiscal package for mining and petroleum companies developed in the mid 1970s. It has the advantage of only deferring nominal tax payments and not applying to profitable projects.

Third, the export incentive scheme was further improved (it had earlier been made more generous) to allow 100 per cent of profits from exports to be exempt from tax in the first three years of operation. This is effectively a tax holiday for new exporting industries. Expenses incurred in promoting export production were also allowed as a double deduction.

In addition to these measures in August 1983 the company tax rate was reduced to 35 per cent (at the same time the dividend withholding tax rate was increased from 15 to 17 per cent). The company tax rate could not be reduced below 35 per cent without giving unnecessary advantage to the new Ok Tedi mine, which paid normal company taxes up to a limit of 35 per cent until it recovered its investment.

The package of incentives now on offer is wide, especially for manufacturing enterprises. It is by and large cost-effective and tailored to the country's needs and comparative advantage. It largely follows the thinking of the 'benefits' school, with some minor and beneficial inroads from the 'production' school.

The issue still separating these schools, however, especially in relation to manufacturing, is protection. It is the major outstanding issue of investment policy and is discussed below in the sectoral discussion on manufacturing.

It is difficult to assess the effectiveness of the above incentives. The Chief Collector of Taxes in Papua New Guinea estimated (in a private discussion) that the measures introduced prior to 1983-84 were decreasing government revenues by K4 million per annum, although much of this would be regained in later years.

The new measures he estimates would probably have a similar effect. In present value terms the measures will probably not cost much. The cost will, however, be very large if some of the infrastructure user charges or infant industry loans cannot be repaid (and at the time of writing there must be some concern over the repayment of money extended to Ok Tedi and Ramu Sugar).

From discussions with at least existing investors the measures have improved investor confidence. They have enabled some projects to proceed where the alternative was either that they would not, or that they would require much more generous incentives.

10. Mining and petroleum

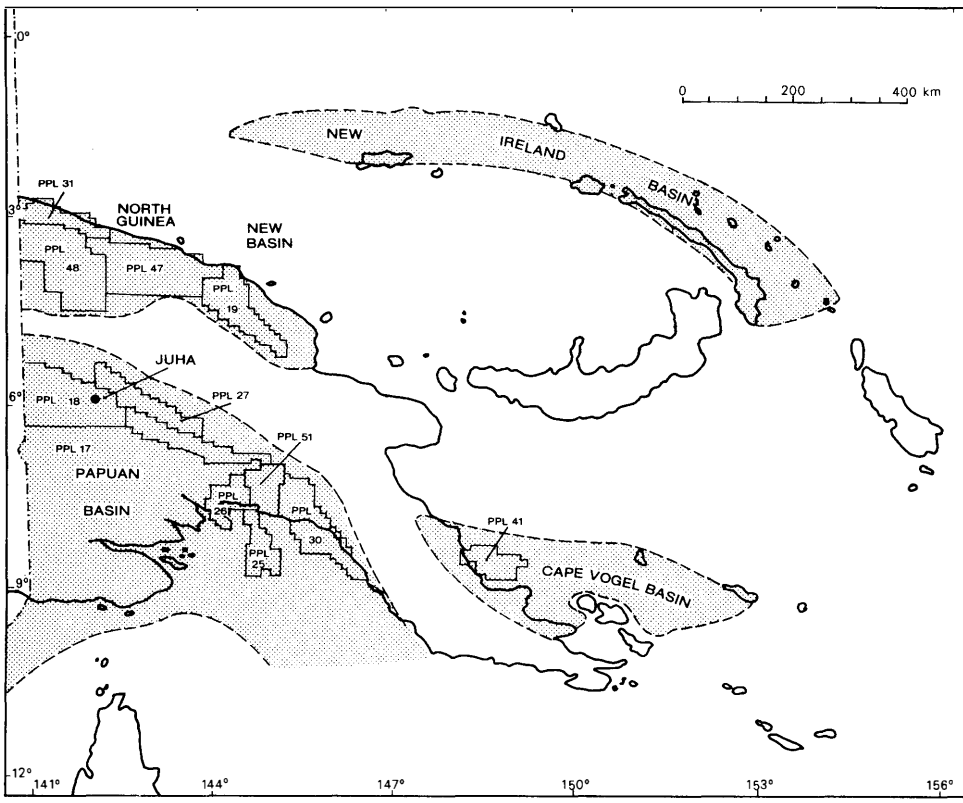
The principal mineral wealth to date has been found in the forms of gold and copper. Both the Bougainville and Ok Tedi mines are developed on porphyry copper-gold mineralization of a type widely distributed throughout the mountain regions of the country (Rogerson, Williamson and Francis 1984). With base metal prices now depressed for a long period, more than 90 per cent of metal mineral exploration activity in Papua New Guinea is concerned with the search for medium to high tonnage, low-grade precious metal-bearing deposits. Apart from the copper-gold porphyrys there are at least five other types of mineral deposit, exemplified by the precious metal deposits located at Porgera, Wau, Misima Island, Lihir Island and Laloki respectively (see Appendix 1), all of which contain substantial quantities of gold in association with other minerals. There are four major sedimentary basins with petroleum potential (Rogerson *et al.* 1984): New Ireland, North New Guinea, Papuan, and Cape Vogel Basins (Figure 1). The potentially commercial Juha gas/condensate field in the Papuan Basin was discovered in 1983, while the existence of substantial gas deposits in the off-shore areas of the same basin has been known for some years.

Since self-government, Papua New Guinea's principal objectives for the development of its mining and petroleum sector has been to maximize the long-term flow of government revenue from the sector, and thus help to meet its goals of fiscal self-reliance and provision of new infrastructure and services in rural areas.

> Papua New Guinea's minerals policy is premised on the view that large mines are useful not for any direct benefits that they bring, but for the financial support that they can provide for progress towards other national goals (Papua New Guinea, Department of Finance 1977:2).

The government has been careful to distinguish the long-term revenue maximization objective from the maximization of the government revenue share in any individual project; it views the appropriate strategy as one which balances the need for incentives

Figure 1 Sedimentary basins and petroleum prospecting licences in Papua New Guinea



Source: Rogerson, Williamson and Francis (1984), Figure 4.

to project development (and efficient operation) with the immediate requirement for tax revenue.

From the time of the BCL renegotiation the government has demonstrated great reluctance to risk its own budgetary resources or borrowing capacity to promote mining projects. The general rule has been established that private investors assume exploration risk, that project sponsors will be responsible for provision of all necessary infrastructure, and that government equity obligations in mining will be limited to an option to purchase a minority share (maximum 30 per cent, but usually much less) at par at the commencement of construction. In petroleum, the government's minority equity will usually be funded by means of a 'carried interest'. There have been two exceptions to this reluctance to risk public funds: first, in wholly exceptional circumstances, such as those following the breakdown of negotiations with the Kennecott Copper Corporation on the Ok Tedi project in 1975, the government has

taken strictly limited exploration risk; second, the government has been willing to provide infrastructure (in exchange for equity or for a commercial return on the funds outlaid) where this would either reduce the investor's risk sufficiently to induce an otherwise excessively risky but potentially profitable investment, or would create significant external economies by establishing infrastructure that might reduce the cost of other major projects.

Profit and cash-flow-based forms of taxation have been viewed as the chief means for meeting revenue objectives. In recognition of the state's limited financial and managerial capacities majority equity shares (or even the largest share in a consortium) have not been sought. Public service administrative capacities have been concentrated on the negotiation of a small number of key projects, which have then provided the basis for general legislation or forms of contract to simplify the negotiation process for subsequent projects.

At the same time, considerable negotiation effort, and supplementary measures in economic management and public expenditure allocation, have been devoted to countering potentially adverse effects from mining: revenue instability, environmental damage, disruption of local communities, or excess demand pressures in skilled and semi-skilled labour markets. Where possible, efforts have been made to increase the non-financial linkages from mining by imposing localization and training, local purchasing and local business development obligations — but without jeopardizing achievement of revenue goals.

In implementing these overall principles, the government has asserted its sovereignty, on behalf of the people, over the minerals in the ground. While stating that the most effective means of developing its mineral resources will be through the agency of foreign investors, the government has continually emphasized that the 'lion's share' of any profits above the level necessary to induce a decision to invest will accrue to the state through taxation.

The specific measures adopted have paid careful attention to the manner in which large multinational minerals and petroleum corporations make investment decisions, and to any contrast between their patterns of risk aversion and rates of time preference and those of the state. The tax regime eventually incorporated in general legislation is designed to enable companies to make maximum use of foreign tax credits (and thus minimize revenue loss to Papua New Guinea), and to be broadly neutral in its effect on the choice between alternative means of financing large projects (the proportion of loans or equity). The tax regime avoids devices which increase the risk of loss, such as high flat-rate royalties or export taxes, and concentrates on measures which tax revealed profitability. Taxation over and above normal company

income tax (levied on accounting profit) is now levied only after achievement of a specified rate of return on project outlays in a discounted cash flow calculation. This reduces investor risk by increasing the possibility of early recovery of outlays in profitable projects, permits repayment of debt before special taxation is imposed, and incorporates a form of calculation which companies themselves use in appraising projects.

The government has sought long-term stability in its agreements with minerals investors. This is achieved not only by clearly setting out the rules of the game in advance, but also by designing the tax regime to adjust automatically to changes in profitability and the balance of negotiating advantage between the investor and the state during project life. Thus the need for further renegotiations of the type required at Bougainville in 1974 is obviated. In this respect the government has departed from the widespread presumption that conflict and periodic renegotiation are inherent in the relationships between investors and host countries in extractive industries (see e.g., Vernon 1967 or Smith and Wells 1975; the alternative positions are succinctly discussed in Garnaut and Clunies Ross 1983:69-77). Crucially, the tax regime adopted does not require an *ex ante* judgment by the state, based on inadequate evidence, about the potential profitability of any given mineral deposit.

Papua New Guinea has also favoured a move towards a framework of general legislation and policy statements of wide applicability, rather than continuing case by case negotiation of fiscal terms. Although case by case negotiation potentially allows a government to collect a higher share of revenues from some projects without imposing an excessive burden on others, it greatly increases the burden of information-gathering and negotiation effort for the government. Moreover, where terms must be settled in advance of development the potential advantage is small and subject to great uncertainty. A general framework is favoured in Papua New Guinea on practical grounds: negotiating capacity is limited, and clearly stated terms are seen to function, in themselves, as an incentive to mineral exploration.

The concept central to Papua New Guinea's current minerals and petroleum tax regime is that of *resource rent*. Following Garnaut and Clunies Ross (1975, 1983) this is defined as the value of the produce of a mineral resource minus all the costs of production, including the minimum returns to capital that are necessary to induce investment. These minimum returns may be termed the 'supply price' of investment. Since there will initially be uncertainty about the outcome of a particular investment, the expected returns must technically be defined as the investor's assessment of the probability distribution of returns after tax; the supply price will then be the probability distribution (or, loosely, 'rate of return') required by the least demanding investor. The supply price will consist essentially of the opportunity cost

of capital in the industry, adjusted for perceived risk. The supply price can be expected to increase with uncertainty, and with risk — which will be greater the larger an individual investor's exposure in a project. *Ex ante* the supply price necessarily implies a discounted cash flow calculation. The government's aim is to tax away the highest possible proportion of resource rent, so defined, which is consistent with efficiency of resource use and the wider incentive to invest. Potential resource rent from an individual deposit will vary according to its relative cost competitiveness in the international league table of workable deposits of the minerals concerned; this position will be affected by a wide range of factors, including the richness of the ore, accessibility of the mine-site, cost of infrastructure and skills and so on. Papua New Guinea has aimed at a tax system which creates a mutual interest in the efficiency of resource use, and thus of rent maximization, but which also caters for both the marginal project and the highly profitable intra-marginal one. The emergence of these principles can be traced through the renegotiation of the Bougainville agreement, and the long negotiation process leading up to the commencement of construction at Ok Tedi.

(a) The Bougainville renegotiation, 1974. The evolution of fiscal regimes for mining and petroleum in Papua New Guinea is summarized in Figure 2. Through time, the regime has moved from one yielding little prospect of large returns to the state from a profitable mine, to one designed *ad hoc* to achieve redistribution of returns from an existing mine, and then to one based on the principles described above (for Ok Tedi), laying the foundation for a regime of general applicability, and expected durability in a wide variety of circumstances.

The original investment at Bougainville was made by Conzinc-Rio Tinto of Australia (CRA), the majority-owned Australian subsidiary of the British-based international mining company, the Rio Tinto-Zinc Corporation (RTZ). At the time of its construction it was the largest single-stage copper-mining operation ever designed and developed (Mikesell 1975:79). Reserves were estimated at 900 million tonnes of ore, averaging 0.48 per cent copper and 0.55 grams per tonne of gold; there were, in addition, significant quantities of silver. Bougainville's output record is represented in the export statistics in Appendix Tables A.21 and A.22: in the early years of production, the concentrates produced and exported contained each year about 180,000 tonnes of copper and some 20 tonnes of gold. The deposit was identified in 1964, evaluation was completed by 1969, and production commenced in April 1972. This was RTZ's first major developing country investment, although it modelled its approach on a similar but smaller open-pit mine constructed by the company at Palabora in South Africa. RTZ/CRA motivations were clearly those of a commercially-oriented mining investor seeking a fairly rapid return of outlays, together with a discounted cash flow rate of return commensurate with risk and the opportunity cost of capital (Mikesell 1975:92-7). RTZ and CRA

were not in search of copper concentrates to feed smelters; sales contracts were struck at arm's length with foreign buyers, including the portion sold to the smelter of an RTZ-associated company, Rio Tinto Patino, in Spain. The project was explored and appraised, and the decision to proceed was made, at a period during the 1960s when expectations about future copper demand and prices were very otpimistic, and when the economics of copper-mining had dictated a shift to large, low-grade deposits workable by open-pit, capital-intensive and non-selective methods. Initial financing requirements were large (substantially exceeding Papua New Guinea's total GDP at the time); in common with other new mining projects, Bougainville relied heavily on loan finance to meet its capital needs (Radetzki and Zorn 1979:57-66). It was an example of partial 'project-financing' in that the shareholders were not required to guarantee all the loans until final repayment: once the project was completed to agreed standards, the commercial bank lenders relied upon project assets and future cash flow for their security. The financing structure of the project is detailed in Table 10. Much of the finance was initially raised on the basis of assurances provided by long-term sales contracts with Japanese and German smelters.

Although the private sponsors were pursuing commercial profitability objectives, there were important non-financial factors encouraging the investment decision. At the time the Australian Government was attempting to rapidly build up Papua New Guinea's long-run export-earning and revenue-raising capacity, and was anxious to be seen to be preparing the country for eventual political transition to self-government (full Independence was not in fact envisaged for the near future at the time). Thus the Australian Government was enthusiastic about a major mining investment by a part-Australian company in Papua New Guinea: Australian official agencies directly supported the project with loans (Table 10), while the Australian Government lent Papua New Guinea the funds to purchase its shareholding and contribute infrastructure. The Australian Government was not, however, prepared to provide CRA with any guarantee against the political risk of expropriation or nationalization by an independent Papua New Guinea.

Papua New Guinea's domestic legislation (and administration) were not organized to cope with an investment of this magnitude. Negotiating skills were scarce, mining legislation essentially offered mining leases unconditionally upon request, and taxation of business was pervaded by the 'pioneer industry' objective of encouraging large numbers of businesses to establish in return for extended tax holidays followed by extremely modest tax rates. When CRA requested a special agreement, arguing that the project was marginal and would need an extended period of tax holiday to meet its debt obligations and provide adequate incentive to equity-holders, it was not surprising that its arguments largely carried the day. The idea that government should provide the

Table 10 Financial structure of the Bougainville copper project[a]

	US$ million	
Loans		
Commercial banks (led by Bank of America)		
7-year floating rate Eurodollar loan, due 1978	67.4	
Floating rate Eurodollar loan due 1973-76	96.0	
US Export-Import Bank 6%, due 1973-78	54.6	
Japanese Government, 8.22% due 1973-79	30.0	
Japanese export-import credit, 6.85% due 1973-82	23.1	
Australian export credit, 7.25-7.75%, due 1973-82	26.5	
Australian Government housing loan, 8%, due 1974-79	15.6	
Total loans		313.2
Equity		
Conzinc-Rio Tinto of Australia	89.6	
Papua New Guinea Government	33.4	
Public share offering	43.2	
Total equity		166.2
Total capital		479.4

[a]At commencement of production in 1972; excludes government's infrastructure contribution.

Source: Radetzki and Zorn 1979:65 (drawing from company annual reports).

minimum concessions needed to procure the development (related to the expected rate of profit for the companies) did not, and, in view of the government's ignorance, probably could not enter into the agreement. 'By this standard the Bougainville Agreement can be seen — and could have been seen by experts at the time — to be far too generous to the companies' (Overseas Development Group 1973:69).

BCL achieved a very low royalty rate (1.25 per cent), a three-year tax holiday followed by the opportunity to take free depreciation, and a permanent exemption of 20 per cent of copper income from tax. On these terms, and the costs and prices actually realized, the company would have recovered all its investment, with interest, by the end of 1974 (about 30 months of production) and still would have paid no income tax until the early 1980s (Garnaut and Clunies Ross 1983:234).

Bougainvilleans themselves had persistently protested about the project's impact on the local society, and on the island's physical environment. During construction some villagers in the port area were forcibly removed and resettled; exploration parties had been fired upon with bows and arrows. The arrangements for disposal of tailings from the concentrator involved no storage dam, but free disposal into the Jaba River system in western Bougainville — once again necessitating village resettlement, destroying subsistence fisheries, dramatically raising the river bed and creating a wholly new delta (a large portion of which subsequently slipped into the sea and could not be revegetated as planned). Although substantial compensation for land rights and environmental damage were paid to local people, and landowners at the minesite received 5 per cent of the royalties paid to government (that is 5 per cent of 1.25 per cent of total sales), local resentment continued, and local political leaders pressed for a larger share of revenues to accrue to the province. These problems fuelled a secessionist threat in the province — a threat carried out some time after the renegotiation and not resolved until July 1976.

Formation of Chief Minister Somare's first national government coincided with the commencement of production at BCL. In the two years until serious renegotiations began, Bougainvilleans and other radical parliamentarians who objected to the existing agreement became highly influential in and upon government. National and local political protest coincided with the realization that copper and gold prices had risen well above expected levels, and the mine was both larger and less costly to run per tonne of output than envisaged in 1967.

Reports from a number of outsiders (e.g. Overseas Development Group 1973) and Papua New Guineans' widening awareness, through new international contacts, that the 1967 agreement had become anomalous by current international standards all added to the pressure for renegotiation. The process leading up to the actual commencement of renegotiation in July 1974 was far from straightforward, and was punctuated by diversions created by the myriad other pressing tasks involved in the transition to self-government and Independence (Garnaut 1981).

Nevertheless, successful renegotiation *was* achieved, by October 1974, once the government had decided upon its objectives in renegotiation, had evolved a coherent political and bureaucratic mechanism for conducting the renegotiations, and had launched a credible threat to legislate its own solution in the event that the company would not strike a new bargain.

The choice of objectives was drawn from the development strategy outlined earlier in this monograph — the government gave primacy to the objective of increasing tax revenue, and sought no measure of additional equity ownership or managerial control

for its own sake. Within this overriding concern, the government also sought to increase the company's other contributions to the local economy — particularly the Bougainvillean economy — by measures of localization and training, business development, and provision for the day when the mineral deposit would be exhausted; and to press the company to take better measures to safeguard the physical environment. The government's proposals for achieving its objectives were influenced on the one hand by recent international experience in the evolution of mining agreements (advisers from the Commonwealth Secretariat, and one from CIPEC — the less developed countries copper exporters' organization — were used by the government in the renegotiation, in addition to foreign advisers resident in Port Moresby), and, on the other, by the need to strike a deal that would not ultimately deter foreign investment in other prospects, and whose terms would, at least in principle, be broadly replicable in future agreements. The Ok Tedi deposit, for example, had been under active exploration until late 1972, and further progress awaited negotiation over work program and terms of agreement between the government and Kennecott.

As part of the preparation for both the Bougainville renegotiation and Ok Tedi, the 'resource rent tax' (RRT) proposal was worked out in 1973 for the Papua New Guinea Minister of Finance (first published by its authors in Garnaut and Clunies Ross 1975). The RRT explicitly taxes mineral rent, as previously defined, by accumulating all negative cash flows (i.e. capital expenditures and operating costs) year by year at a compound interest rate equal to the agreed threshhold rate of return until they are fully offset by positive cash flows (revenues — including net interest payments and depreciation provisions, so that the computation is not affected by financing structure) at which point an RRT cuts in on all further net positive cash flows at a specified rate. The tax has been termed the Additional Profits Tax (APT) in Papua New Guinea. 'The company reacted quickly, strongly and negatively to the proposed system when given the opportunity to comment upon it in principle' (Garnaut 1981). In the event, the principle of taxing mineral rent by taxing profits above a certain annual level was followed, though not the method of applying a discounted cash flow (DCF) calculation over project life implied by the RRT (see Figure 2).

The organizational and tactical approach to negotiations taken by the government set a precedent for all future minerals projects, and is thus important in its own right. For Bougainville the government first took a number of steps that progressively widened political, public (and perhaps even international) support for the view that renegotiation was necessary. As well as the Faber report, (Overseas Development Group 1973) the government commissioned a report from Louis Wells of Harvard Business School, and consulted a range of international organizations and foreign governments; after a series of debates, parliamentary support for renegotiation was strong. A small inter-departmental group, including a range

of advisers, was appointed to handle the renegotiation — thus cutting across any individual departmental interest — with designated co-chairmen and all members in close and regular contact with the political leadership. The closing stages of the renegotiations were directed by a small ministerial group led first by the Deputy Chief Minister, and finally by Chief Minister Somare himself. The coherence of political, public service and advisory contributions was a key element in all Papua New Guinea's major minerals negotiations.

The company, naturally enough, did everything possible first to prevent renegotiation, and then to soften its impact on shareholders. The company tried, unsuccessfully, to enlist intervention on its behalf by the Australian Government, and, with perhaps greater short-run success, to raise the threat that no other company would dare to invest in Papua New Guinea in the face of the risk of such a renegotiation. Finally, the company offered a deal involving acquisition of at least a 50 per cent shareholding, on the company's terms, by the government. The government, however, pressed ahead with its demand for a greatly increased share of revenue through taxation, rather than any new deal on equity. In September 1974 the government threatened unilaterally to legislate its own proposals; faced with nervous shareholders (market valuation had suffered badly at a number of points since the spectre of renegotiation was raised in 1972) and lenders who probably perceived greater risks to their own position from a government-imposed solution than from a negotiated settlement, however adverse for shareholders, the company capitulated.

The details of the settlement, and the comparison with the 1967 terms, are shown in Figure 2. Partly because *ad valorem* royalty was regarded as an inefficient form of rent taxation (raising the variable costs of mining, and thus raising the economic cut-off grade within a deposit), and partly because secessionist pressure upon the formulation of Papua New Guinea's new constitutional framework made it likely that mineral royalties would be paid to future provincial governments, not to central government, the 1.25 per cent royalty provision remained. An additional payment for the province of 50 cents (toea) per tonne of contained copper was to be made to a Bougainville non-renewable resources fund.

All the tax holiday and accelerated depreciation provisions were swept away. The form of additional profits tax imposed was of the kind now termed a 'progressive profits tax' or PPT (Garnaut and Clunies Ross 1983:95-7); in other words, the more profitable the project, the higher the rate of tax, but with taxable income assessed on a profit and loss, not cash flow, basis. In the 1974 Bougainville Agreement profitability is measured as after tax profit expressed as a percentage of 'capital investment'. Capital investment is subject to re-estimation each year from a base of capital expenditure incurred up to the beginning of 1974, net of capitalized

interest and depreciation on replaceable items; re-estimation (in kina) involves adjustment for changes in the US dollar/kina exchange rate, addition of new capital expenditures, and deduction of depreciation in respect of replacement items. At profit rates of 15 per cent or below, normal company tax applies, above 15 per cent a marginal rate of 70 per cent applies to taxable income, that is additional profits over the 15 per cent threshold are additionally taxed at (70-n) where 'n' is the prevailing rate of company income tax. Applications for use of a provision for discretionary revaluation of the capital base in circumstances of 'excessive inflation' have so far been turned down by the Minister of Finance.

By settling, rather than resisting to the point of legislation, the company retained some important benefits: depreciation of total capital expenditures was to begin only from 1 January 1974; the new regime was not backdated to 1973 or beyond; and one-half of PPT liability for the first half of 1974 was related. Apart from the company's initial resistance, the reason for not using some form of RRT was probably the difficulty of making the renegotiated agreement fully retrospective, without which the application of the DCF calculation required can become somewhat aribtrary. Although neither the company nor the government has expressed a formal view on the matter, some observers have concluded that the 1974 Bougainville regime, taken together with the period of application of the 1967 regime, has imposed a lighter overall fiscal load on the investors than they would have borne had they been subject to the 1978 general mining tax regime from the inception of the project (Garnaut and Clunies Ross 1983:236).

Bougainville Copper Limited paid additional profits tax from 1974, 1979 and 1980 income (tax is normally paid to the MRSF one year later). The total BCL-related revenue paid to the MRSF has exceeded K20 million in every year since the new regime came into force, exceeding K100 million in 1980. Nevertheless, BCL has continued to declare and pay significant dividends every year. Taking into account royalty, the government's 20 per cent share of dividends, and dividend withholding tax on dividends sent abroad, earnings net of interest and depreciation have been divided on average in the ratio of 65-70 per cent to government and 30-35 per cent to private shareholders (calculated from *BCL Annual Report* 1983:24).

(b) Ok Tedi and the general mining tax legislation. Following discussion of Papua New Guinea's general principles in the mining sector, and of the Bougainville precedent, the settlement of the fiscal terms for Ok Tedi can be treated more briefly. Apart from its size and significance for the Papua New Guinea economy, Ok Tedi is important in this study for four main reasons. First, it set the detailed precedent for the 1978 general mining tax legislation. Second, the initial exploration company was ejected from the prospect, with the state temporarily assuming exploration risk. Third, at the 'approval of proposals' stage in FY 1979/80, the

government's risk exposure in its contribution to equity and to infrastructure became major negotiating issues, settlement of which set further precedents. Fourth, the geology and location of the project, together with the metal market circumstances during the time of its design and construction, have made Ok Tedi a considerably more complicated project in which to safeguard the state's interest than Bougainville has been; it will eventually be many-staged rather than single-stage, and involves a consortium of sponsors rather than a single major company. Two full-length books about Ok Tedi have recently been published (Jackson, R. 1982; Pintz 1984) so the project need not be described in detail here.

At the time of the formal decision to proceed with construction of the mine (February 1981), mineable ore reserves were estimated at just over 400 million tonnes averaging 0.68 per cent copper and 0.84 grams per tonne of gold (there are also small but recoverable amounts of molybdenum). Ok Tedi was thus a lower-volume but higher grade deposit than Bougainville. These averages conceal a separation of Mt Fubilan (the ore body) into a number of distinct zones: a leached capping rich in gold but containing insignificant amounts of copper; next an enriched zone of high copper values, protruding into the leached cap, also containing gold; then the main ore body more similar in characteristics to that of Bougainville: and finally limited zones of skarn ores with high copper and gold values. Each zone presents different mine planning and metallurgical problems; development strategy is much more sensitive to the relative prices of copper and gold than was the case at Bougainville. The minesite is even less accessible than that of BCL, has a high risk of earthquakes and receives 10,000 mm of rain per annum falling over more than 330 days of the year.

Active exploration of the prospect was carried out by Kennecott from 1968 to 1972 — to the point where a substantial preliminary engineering study was commissioned. Significant expenditure was then halted as Kennecott waited for the outcome of the BCL renegotiation, and sought a concession agreement of its own to increase its security of tenure. During the 1972-74 period, however, Kennecott was faced with a multitude of difficulties outside Papua New Guinea that may have had more influence on its decisions than local events: its interests in Chile were nationalized, its United States operations faced tough new environmental legislation and anti-trust action by the United States Justice Department, and its profitability fell dramatically as a result first of United States price controls and then of declining copper grades and increasing costs (Pintz 1984:46).

The Papua New Guinea government was preoccupied with Bougainville, but continued to negotiate with Kennecott. From October 1974, fresh from the BCL success, the government devoted nearly six further months to attempts to reach a deal on Ok Tedi. The attempt foundered ostensibly on Kennecott's determination to achieve

more generous provisions for investment recovery, and subsequently for protection of its threshold return against the effects of inflation, and upon its insistent refusal to submit to Papua New Guinea law for the arbitration of disputes. Given that Kennecott also refused a government offer to finance continued exploration, in return for equity, while negotiations were conducted, it is hard to avoid the conclusion that, in late 1974 and early 1975, Kennecott's worldwide problems were the main cause of its withdrawal from Ok Tedi. The acceptability or otherwise of Papua New Guinea's proposed fiscal terms was not finally tested in these negotiations. In March 1975, the government refused to renew Kennecott's Ok Tedi prospecting authority, and took over the prospect (including the site facilities) itself, setting up a government-owned company for the purpose. In order to neutralize the effects of Kennecott's probable objections to loss of 'rights' to any other private investor, the government offered Kennecott an ex-gratia payment of its Ok Tedi expenditure in the form of bonds issuable at the eventual commencement of construction of a mine. By the early 1980s, Kennecott was back in Papua New Guinea, actively exploring in full awareness of the general mining tax legislation.

The government company also took over most of the former Kennecott site employees, and engaged consultants Behre Dolbear of New York to carry out a drilling program, based on Kennecott's work, aimed at delineating a target ore-body. This objective was achieved with considerable success: US$4 million was spent and the expected size of the ore-body and the degree of confidence in the estimate were both greatly increased. Meanwhile, the search for alternative private investors produced virtually parallel sets of negotiations with a group led by Alusuisse of Switzerland and with the Broken Hill Proprietary Company (BHP) of Australia. A draft agreement with Alusuisse collapsed when one of its group, Pennaroya of France, pulled out. In March 1976, an agreement was signed with BHP for a feasibility study of Ok Tedi, based on a careful defined work program, with target dates for completion, submission of proposals, for the decision to proceed to the finance and marketing stage, and ultimately to construction of a mine. The agreement was conditional upon its incorporation into an Act of the Papua New Guinea Parliament, and the successful formation of an investor consortium by BHP.

By October 1976, these conditions had been fulfilled, BHP was joined (37.5 per cent) by Amoco Minerals of the United States, and 25 per cent by Kupferexplorationsgesellschaft (KE) of West Germany. BHP's own motives for participation were similar to those of CRA at Bougainville: BHP wished to extend its overseas and non-ferrous metal interests, pursued essentially a commercial rate of return, but felt strong obligation as the leading Australian private sector 'corporate citizen' to invest in Papua New Guinea. BHP itself, and BHP directors as individuals, have from time to time held other significant business interests in Papua New Guinea.

Amoco Minerals was the hard-rock minerals subsidiary of the Standard Oil Company of Indiana (SOI), an example of the diversification moves made by major oil companies during the 1970s. At the time Amoco had no operating mines, and its major copper interest, at Tengke-Fungurume in Zaire was to be abandoned in 1976 after significant outlays. Amoco straightforwardly sought a satisfactory financial rate of return on a diversification investment. KE was a West German government-sponsored consortium of four metal processing or fabricating companies led by Metallgesellschaft (MG). Its principal objective was the enhancement of West Germany's security of copper supply — particularly of copper in concentrate form suitable for feeding the smelting and refining plant in which MG had a substantial interest. Each participant in KE sought the least possible risk exposure, and the group received up to 60 per cent of its exploration costs as a loan from its government, repayable only in the event of development of a project. KE's participation opened the attractive possibility, for all the private partners, of eventual official German government financial support for the project's construction.

The agreement reached with BHP, and accepted by the other consortium partners, is detailed in Figure 2 (third column). The amounts creditable towards the government's equity share included the value of the bonds issued to Kennecott — hence Kennecott was to be reimbursed indirectly from Ok Tedi itself. This time the RRT was accepted: at a rate of (70-n), where 'n' is the company income tax rate on cash flows in excess of *either* a flat 20 per cent DCF rate of return *or* a variable rate of return consisting of the United States AAA corporate bond rate plus 10 percentage points (calculated each year as an annual average). The choice was to be made by the company at the commencement of production. In effect the consortium was offered alternative forms of inflation protection, avoiding the need to arrive at any indexation formula for capital investment: the real return could be 20 per cent *less* the realized rate of United States inflation (flat rate option) or 10 per cent *plus* the excess of a long-term United States interest rate over United States inflation.

In order to meet the contrasting risks of (i) excessive profits (on an accounting basis) during the period of negative cash flows for APT purposes — politically unacceptable in Papua New Guinea, or (ii) imposition of normal company tax leading to debt service difficulties in early years, the agreement incorporated a 'hybrid' of company income tax, optional accelerated depreciation and APT in the form of RRT. The logic of the hybrid is carefully expounded in Palmer (1980). By permitting 'acceleration' of depreciation to the point where after tax cash flows equal 25 per cent of the initial investment, the device ensures that a marginally profitable project will recoup investment within four years, while a highly profitable project will pay company income tax at an early date. Both risks are therefore considerably reduced. If the option to accelerate depreciation is exercised, the date

when APT becomes payable, on a profitable project, is advanced because early negative cash flows in the form of company tax payments are reduced. In any case if, as is likely, the government's rate of discount is lower than that of the investor, and the government has access to international capital markets the advancement of APT will outweigh the postponement of company income tax in present value terms to the government, without causing government liquidity problems. The option will also increase the likelihood of a positive investment decision. The political unacceptability (and thus increased risk of renegotiation) of an extended tax holiday under a pure RRT system makes the hybrid a more practical approach.

Soon after the formation of the Ok Tedi consortium and the commencement of the feasibility study, the government issued a Statement of Intent (Papua New Guinea, Department of Finance 1977) to solicit industry comment on proposals for general mining tax legislation closely resembling the Ok Tedi fiscal arrangements. After considering a large number of responses from mining companies and international banks, the government enacted the terms set out in the fourth column of Figure 2. The principal departures from the Ok Tedi arrangements were a provision to encourage additional capital expenditure at established mines (in effect, a limited extension of accelerated depreciation), the inclusion of stock changes in the cash flow calculations for APT purposes, and an attempt — not, in the end, altogether successful — to make the interest rate in the accumulation rate option less 'subjective' by substituting United States Prime Rate plus 12 percentage points. Immediately after the Ok Tedi agreement, the government was faced with the possibility of negotiations on at least two other projects (Frieda River and Porgera) though full concession agreement negotiations in fact did not occur. General legislation was seen as a labour-saving device for the government and an uncertainty-reducing incentive for potential explorers. Sufficient flexibility over the terms for government equity, and infrastructure provision, was retained to permit alteration of the actual division of risk and reward in special circumstances.

(c) Ok Tedi: equity, loan guarantees and provision of infrastructure. By the time the Ok Tedi development proposals were presented to the government late in 1979, the mine plan had evolved to one of three stages instead of a single stage ((i) gold bullion only, (ii) gold bullion and copper concentrates, (iii) copper concentrates only). The consortium, not surprisingly, considered the project to be 'marginal', and came forward with a shopping list of new demands upon the government — most significant among which were demands that the government immediately indicate its willingness to exercise its 20 per cent equity option, and provide some A$180 million-worth of infrastructure on concessional terms. The government meanwhile had formulated its own views on the manner in which it might provide infrastructure, if any, and the terms upon which it would take its equity share (see Pintz 1984:72-8, 96-7, for a fuller account).

Assisted by favourable copper prices in late 1979 and early 1980, and an all time peak in the price of gold during the negotiating period of January-February 1980, the government was able to present and sustain counter-proposals to those of the consortium. The government agreed to provide a maximum of A$50 million towards the cost of the mine access road (by 1984 the road in fact cost much less), in return for a user charge that would yield approximately 15 per cent (the Eurobond yield plus 5 percentage points) DCF return on the government's outlays over a maximum of fifteen years following expected completion of Stage 3. In other words, the government extended a long-term loan to the project, at a relatively high rate of interest but without requiring a guarantee of repayment from the shareholders. Repayment will be brought forward if the project's debt-cover ratio exceeds 1.25 in any earlier year. This 'loan' by the government is secured only against the project's assets and cash flow. Hence it reduces the initial exposure of the private partners, and raises their return if the project as a whole yields in excess of the infrastructure yield after tax. Conversely, if the project is marginally profitable, the interest portion of the infrastructure user charge will function as a type of 'royalty' in raising the government's revenues — but without the initial deterrent effect of any higher royalty upon the investment decision.

The government indicated that it would reserve its final decision upon its equity share until it had approved the project's financing strategy. Meanwhile, for Stage 1 (the gold stage) agreement was reached that the government would not have to provide loan guarantees proportionate to its likely 20 per cent stake, nor would necessarily have to meet its proportionate share of any project cost overruns (in which case its equity share would dilute). Its share of loan guarantees was effectively reduced by 66 per cent (US$88 million) in respect of project loans up to US$650 million for Stage 1. At subsequent negotiations on the financing strategy, limits were also set on the government's loan support obligations for Stage 2, and it was extended more favourable terms than the private partners in the event that the state wished not to contribute to additional equity calls to meet cost overruns. These somewhat complex arrangements are summarized in Table 11. By 1984 the project had overrun its original budget by at least US$200 million, so that the FY 1980/81 supplemental agreements have been of significant value in reducing the government's contingent liabilities (publicly-guaranteed debt in World Bank terminology). In effect, the government traded a large contingent liability (not guaranteeing its full equity share of the loans) for a significantly lower actual liability (the infrastructure loan) — the latter carrying the prospect of a commercial return, and financed in part from concessional funds; this was achieved in a manner that encouraged a positive investment decision by the private sponsors. The negotiations served to emphasize that the risks of state participation in a highly geared project depend upon more than the quantity of cash outlaid for shares.

Table 11 Loan support obligations for shareholders in the Ok Tedi project (in US$ million)

Project cost (assuming 70:30 debt:equity)	Support for loan finance		Equity	
	Consortium	State	Consortium	State
Stage 1				
Up to 400	280	-	96	24[a]
400 to 700	168	42	72	18
700 to 928	160	-	58/65	3/10[b]
over 928	State has option to participate or not in loan support; if it does not participate 5 per cent guarantee fee is paid by Ok Tedi Mining to the consortium guarantors.			
Stage 2				
Up to 493/528[c]	296[d]	74[d]	97/132	25/32[e]
over this figure	State has option to participate or not in loan support; if it does not participate 2½ per cent guarantee fee is paid by Ok Tedi Mining to the consortium guarantors. Note: Project cost in Stage 2 includes any operating cash shortfalls from Stage 1.			
Stage 3	Consortium and state contribute in proportion to shareholding.			

[a] Some $19 million of this amount will be by way of equity credits.

[b] The state can decline to contribute equity above $45 million but is diluted accordingly.

[c] Figure is 493 on basis of 75:25 debt:equity ratio allowed by Second Supplemental Agreement or 528 if lenders insist on 70:30.

[d] This assumes that state has met full equity calls in Stage 1 and not been diluted; if it has been diluted these figures will reflect the new shareholding percentages.

[e] State can decline to contribute equity above $26 million (either in form of new funds or capitalization of retained earnings), but is diluted accordingly.

Source: N.M. Rothschild & Sons Ltd, Ok Tedi Gold/Copper Project, Final Report, 1 April 1980 - 31 March 1981, p.10.

(d) Petroleum. The principles of petroleum taxation, and policy towards state participation, have evolved in close parallel to those for mining. A petroleum prospecting licence (PPL) agreement was reached with Esso in 1976, following the issue of a Statement of Intent on financial policies in October 1975; the statement was discussed with petroleum companies, and subsequently incorporated in general legislation. Negotiations continued, however, over two major issues that appeared to be of greater importance to oil companies than to mining companies: the degree of ministerial discretion over the rights of a company to progress from a PPL to a development licence in the event of a commercial discovery, and the rights of oil companies to hold foreign exchange offshore. Both issues were resolved in negotiations with different companies over the period 1978-80: the first by the application of suitable arbitration provisions and assurance of a right to proceed provided that all work had been carried out in accordance with good oilfield practice; the second by Papua New Guinea's insistence that the convertibility of its currency would be maintained, and by the assurance that interest-free shareholder loans could count as normal loans (with certain restrictions) for foreign exchange retention purposes. A summary of Papua New Guinea's petroleum tax and participation regime is shown in Figure 2 (column 5).

The carried interest arrangement provides for the state to acquire its equity share (or, strictly, 'venture interest' if the common joint venture form is followed) without cash outlay. Funds are deemed to have been loaned to the state for the equity purchase by the private partner; the loan is repaid, with interest, from the proceeds of the state's share of production, less production costs. The carried interest operates, in effect, as a second tier of resource rent tax, cutting in when project returns equal to the interest rate have been achieved and at a rate equal to the state's percentage share (usually 22.5 per cent). Papua New Guinea petroleum agreements are technically in production-sharing form, but the state may request the private partners to market its share of oil.

With variations in rates to suit the petroleum industry, company income tax, accelerated depreciation and APT in the RRT form all operate in the same way as for other minerals. It should be noted that exploration expenditures are capitalized, and therefore depreciated against company income tax rather than immediately expensed; exploration expenditures represent a far higher portion of total capital costs in petroleum than in hard-rock mining. In order to protect its revenues against non-arm's length transactions, the state retains the right to fix a 'norm price' for calculation of revenues for tax purposes; the norm price is based on the nearest available arm's-length or market price for the type of oil produced.

Papua New Guinea's fiscal and participation package, when applied to a relatively profitable field would probably split cash flows in the proportions of state 85 per cent, private partners

15 per cent. By the standards of oil-producing states such a split is generous to the private investors. It has to be remembered, however, that oil has not yet been confirmed in commercial quantities in Papua New Guinea. When it is it will be feasible, for example, to raise the carried interest equity share in agreements with latecomers.

There is a reasonably good chance that a commercial discovery could be made at Lohia, in the northwest corner of the Western Province. Managed by Gulf Oil for a consortium of companies, two successful holes have so far been drilled — if one or two more are drilled in different parts of the licence area a commercial find will probably be recorded by the companies. They are looking for a large discovery to cover the expected high infrastructure costs associated with such a remote location.

(e) Minerals and petroleum: expectations and results. There are four sets of criteria by which the success or failure of minerals policy might be judged: the share of cash flows obtained from existing producers, the extent of commitments to new productive capacity, the degree of exploration interest shown, and the amount of exploration work undertaken. On the first two counts, Papua New Guinea's approach can be judged a broad success: BCL has continued to produce, and to invest, and has generated revenues for the government and its private shareholders in roughly the expected proportions. The Ok Tedi project has been launched, although it remains to be seen whether it will be interrupted by the depressed state of the copper market and whether its revenue contribution will match the expectations of 1979-81. On the third and fourth counts it is possible to form a judgment on the recent record of exploration activity in Papua New Guinea; this has been fully researched for the first time by Charles Johnson and Allen Clark (1984)[2] in respect of metal minerals.

Johnson and Clark divide mineral exploration expenditures into 'grass-roots' and 'major project' expenditures: the former refers to activity on prospecting authorities without major identified discoveries, while the latter refers to work on identified deposits prior to the concession agreement/feasibility study stage. As shown in Figure 3, expenditure in constant prices peaked in the early 1970s, fell sharply, and then began to rise again from about 1977 — although the resurgence of 'grass-roots' exploration has been considerably less dynamic in the most recent period. These phases can be explained as follows. The boom in

---

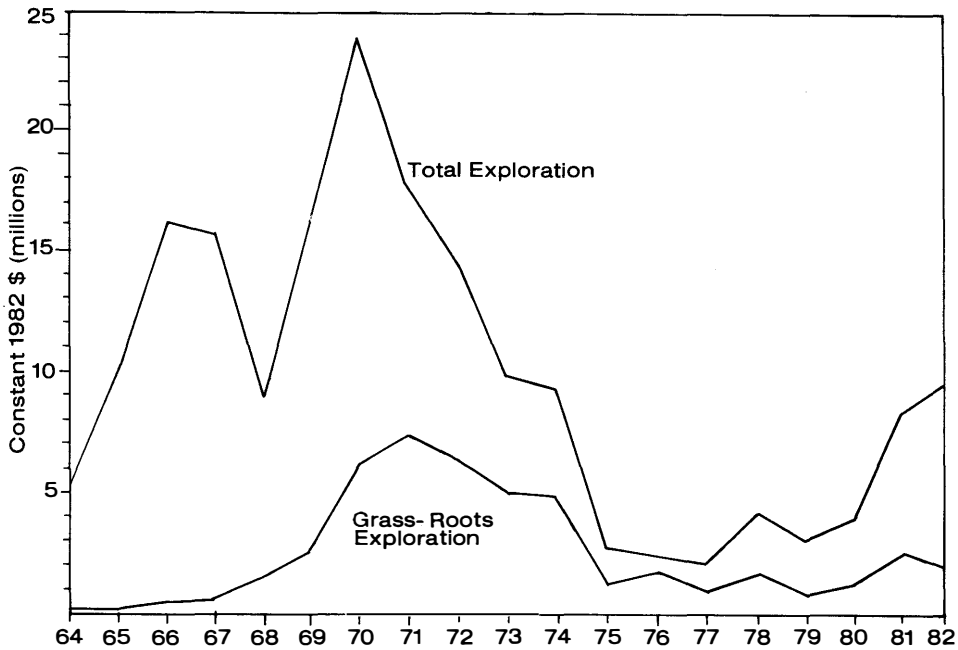
[2]This unpublished paper is cited by kind permission of Dr Allen Clark of the East-West Center, Honolulu, and of the Papua New Guinea Department of Minerals and Energy. We are also indebted to Allen Clark and Charles Johnson for supplying additional tabulations not included in their paper.

Figure 2 Comparative fiscal regimes for mining and petroleum in Papua New Guinea

	Bougainville 1967	Bougainville 1974	Ok Tedi 1976	1978 General mining regime (including policy statements)	1978 General petroleum regime (including standard agreement)
Government equity	20% purchased at par during construction	No change	Option to purchase up to 20% at par at commencement of construction (credit for outlays)	Negotiable option to acquire up to 30% at par; early negotiation of terms envisaged	Carried interest option, usually 22.5%, repayable at AAA bond rate plus 5% from the state's share of 'profit oil'
Government infrastructure	A$41 m; no charge to company	No change	Option to provide in return for 'capital user charge', or equity credit	Sponsors to provide, but Ok Tedi options retained	Infrastructure to be provided by sponsors (including the state in proportion to venture interest)
Royalty	1¼% on f.o.b. sales value	No change — but transferred to Provincial Government	1¼% of f.o.b. sales value, payable to Provincial Government	As Ok Tedi	1¼% of wellhead value of production
Company income tax	(1) 3-year tax holiday (2) Accelerated depreciation (3) 20% of income from copper permanently exempt (4) Initial 25% rate, rising gradually to 50% in 5th year after tax payable	Tax holiday, accelerated tax depreciation, and 20% exemption all abolished	Normal rate applicable (33⅓% in 1976) subject to maximum of 35% during investment recovery period. Accelerated depreciation option available	As Ok Tedi (48% maximum rate for non-PNG incorporated companies)	50% with accelerated depreciation option

Additional profits tax	None — but company tax to rise by further 1% p.a. from 26th year of production	Profits in excess of 15% of capital base to be taxed at total rate of 70% (including company tax). Capital base to be adjusted for exchange rate changes, now capital items, and depreciation of items replaced	Cash flows in excess of 20% (or optional AAA bond rate plus 10%) after tax DCF return on total funds to bear APT at (70-n)% where 'n' = company tax rate. US$/kina exchange rate adjustment allowed	As Ok Tedi, with optional rate replaced by US Prime Rate plus 12%, cash flows defined to include stock changes	Cash flows in excess of 27% after tax return on total funds, bear APT at 50%. APT assessed separately for each licence area
Dividend withholding tax	Nil — introduced in 1972 at 15% and applied to BCL	15% on dividends paid to non-residents; effectively fixed in agreement	15% on dividends paid to non-residents; rate fixed in agreement	15% on dividends paid to non-residents (raised to 17% in 1984 budget)	Nil — foreign petroleum companies not expected to incorporate locally
Import duties	Frozen at 1967 levels (mostly zero) for 10 years after completion	Normal duties to be paid, but new duties not to be discriminatory	Normal duties, but new duties not to be discriminatory	Normal duties, with non-discrimination clause	Normal duties, with non-discrimination clause
Depreciation	Acceleration allowed to permit recovery of all capital outlays before tax payable	Normal provisions of Income Tax Act, but assets deemed undepreciated at 1/1/74	Normal rates, but acceleration allowed if after tax cash flow is less than 25% of initial capital expenditure	Exploration: lesser of 5 years or mine life, straight line. Development: lesser of 10 years or mine life, straight line. Accelerated depreciation option as in Ok Tedi	Exploration: lesser of 4 years or field life. Development: lesser of 8 years or field life. Accelerated depreciation option
Additional capital outlays (after commencement of production)	Immediate deduction	Provision of APT deferral if capital expenditure exceeds depreciation	No special provision (but automatic deduction, for APT)	25% depreciation in first year (plus automatic deduction for APT)	No special provision (automatic deduction for APT)
Foreign exchange	Australian law, no special provision	No change	All export proceeds to be converted to kina, but provision to hold 3 months current obligations plus loan repayments offshore	Conversion to kina, but negotiable provision to hold 3 months obligations off-shore	Provision to hold at least 3 months obligations offshore, including repayments of shareholders' loans

Figure 3 Trends in total exploration and grass-roots exploration expenditures



Source: Johnson and Clark (1984: Fig. 16).

activity in the late 1960s coincides with the development of the Bougainville discovery; there was strong interest in Papua New Guinea as a major new copper province in conditions of optimistic expectations about future copper demand and prices, and also some spillover of exploration interest from the boom in Australia. During this phase a number of major deposits were identified — including Ok Tedi and Frieda River. The subsequent sharp decline resulted from the failure of the Kennecott negotiations, uncertainty surrounding the BCL renegotiation and Papua New Guinea's transition to Independence, and, just as important, from the sharp change in the prospects for copper prices and the fortunes of major mining companies. After the removal of political uncertainties and the establishment of Papua New Guinea's clear fiscal framework, exploration outlays began to rise again, accelerating as Papua New Guinea became recognized as a potential province of low-grade gold deposits. With the strong rise in the price of gold over 1979/80 interest has risen sharply; this is not, however, fully reflected in exploration outlays for a specific administrative reason. During 1980 Papua New Guinea's small and understaffed Mines Division responsible within the Department of Minerals and Energy for processing prospecting authority (PA) applications

became unable to cope with the increasing work load. A moratorium on the issuing of new PAs was therefore enforced from November 1980 to November 1982 in order that the backlog might be cleared. In retrospect, this was probably an inappropriate and costly solution to the problem: use of consultants, or other temporary arrangements, might have added another one million dollars per annum to 'grass-roots' exploration expenditure (Johnson and Clark 1984:51).

The position has since improved: the number of PA applications outstanding was reduced from fifty-two in June 1982 to thirty in March 1984 (information from the Department of Minerals and Energy), of this thirty-six are for PAs in North Solomons Province where a moratorium on further exploration has been in force for more than a decade at the request of the province, thus twenty-four new applications were outstanding. Some eighty PAs were under active exploration by March 1984, although a tendency had emerged to grant very large areas to two or three major companies, so that some doubt must remain about the intensity of work in some areas. It is clear, however, that (subject to solution of these administrative problems) favourable market conditions for gold or copper will bring a substantial upsurge in exploration activity in Papua New Guinea. In addition, feasibility studies were at an advanced stage on Porgera, Misima and Lihir at least one to two of which could well commence mine construction in the next twelve to twenty-four months. All this confirms the broad acceptability of a fiscal package which yields the major share in revenues from profitable projects to the government.

The position in petroleum is similar. Because full petroleum agreements are normally concluded before a PPL is issued and exploration commences, a much smaller number of PPLs has been issued since the government's petroleum policies were formulated. As of March 1984, ten PPLs were valid, with a further six applications outstanding, involving twelve major and independent exploration companies or consortia. The sixteen PPLs cover 1566 on-shore and off-shore blocks, under arrangements which require a proportion of blocks to be progressively relinquished during the maximum eleven-year life of a PPL (including all permissible renewals). On the basis of commitments made by mid-1985 it is likely that thirty-six wells will have been drilled in Papua New Guinea in the decade 1980-89 by the sixteen consortia, making the country a highly sought-after prospecting area despite its size and lack of a fully-grown proven commercial discovery.

Papua New Guinea thus has the geological potential, legal framework and fiscal arrangements sufficient to offer considerable incentive to mineral exploration and investment, given satisfactory market conditions. Provided that the government is able to devote the necessary administrative and technical effort, the framework also allows the government to ensure an intensive exploration effort on the PAs and PPLs it awards. In the event of a commercial

discovery, negotiation over fiscal provisions is now minimized, and the state can expect a significant revenue flow if profitable projects are developed. The outstanding areas of negotiation in each case concern the terms of the state's participation, the mine (or oilfield) development strategy, and the minimization of adverse environmental and social impact. The government has so far had considerable success in limiting the risks it is forced to take in securing an adequate inflow of foreign investment and a majority share of the rewards from profitable projects. The continuing challenge, posed at both Bougainville and Ok Tedi, is to ensure an optimal pace of development (from the viewpoint of resource use and government revenues) when corporate objectives deviate from the strict profitability criteria with which Papua New Guinea's fiscal regime is designed to deal, or when state and corporate perceptions of risk significantly differ.

11. Forestry and forest industries

Indonesia, Malaysia and the Philippines are jointly responsible for 65 per cent of the world's hardwood exports. The total forest resources of Papua New Guinea are of a similar size to that of Malaysia and the Philippines and are approximately half the size of Indonesia's. On the basis of total forest resources per head of population, however, Papua New Guinea is much better endowed than any of the other three countries (Papua New Guinea Office of Forests 1983:3). Papua New Guinea has over thirteen times the average world forest resources per head.

Of Papua New Guinea's 46 million hectares, 36 million are of enclosed forest and 15 million hectares of that (or over 30 per cent of the area of the country) are held to be commercially operable containing 500 million cubic hectares of timber (Papua New Guinea Office of Forests 1983:2). Current timber operating rights are held only over 1.5 million hectares, or 10 per cent of the potentially operable area, and the annual log harvest is only 1.5 million cubic metres. Normal rates of natural regeneration would suggest that the annual log cut could increase three to four times before Papua New Guinea's sustainable yield is reached, even though only 23,000 hectares have been reforested. Because of excess logging in other countries, Papua New Guinea is the last country in the Asian region in this position, a feature which should give it considerable bargaining power in the future. Finally, the forest resources are evenly spread around mainly the lowland areas of the country, making the industry of potential benefit to most of the country and putting it in close proximity to many natural harbours.

Against all these very positive features, and in comparison to the Southeast Asian resources, Papua New Guinea's forest areas contain lower volumes per hectare, a haphazard mix of many species which vary from place to place (one species is usually a maximum of 10 per cent of the resource in the area), and species which,

while apparently possessing excellent qualities, are less well known.

While only 10 per cent of the country's operable forest resources are currently being exploited, this 10 per cent is the most accessible and generally has the best species mix. In some provinces, for example New Ireland and East New Britain, very few areas of operable forest resources are left. Certainly in specific areas and perhaps in the country as a whole, the lack of any sizeable effort at reforestation must be of concern despite the statistics quoted above.

Forestry is a concurrent subject under the Organic Law on Provincial Government; as a consequence forestry field staff are responsible to the various provincial governments, while overall policy control and general responsibility remains with the central Office of Forests. This office is, however, located within the large Department of Primary Industry, and so does not have sufficient control over its own funding and staffing. The number of Provincial and National Office of Forest's staff is currently at its lowest level in many years, sharply declining since Independence, a time when the industry has been expanding. The government's forestry administration has insufficient staff in a poorly structured organization.

There are three methods of acquiring rights to timber from the traditional landowners: the Timber Rights Purchase (TRP) exercised by the government over large areas; the Timber Authority (TA) for very small purchases, which are issued by a local forestry inspector; and directly from owners of timber with the approval of the national Minister for Forests under the Forestry (Private Dealings) Act. In each case, the traditional owners must agree to the acquisition, which gives them a power of veto over potential developments. While the first method requires a potential developer to deal with the national government, the third method has encouraged sometimes unscrupulous developers to cultivate a close relationship with and make false promises to the local people, who have then pressured the national Minister for Forests into sanctioning proposals for development which are less beneficial to the country than those required to gain access to forest resources under a TRP.

There are seventy-two sawmills, three veneer mills, one plywood and one wood chip mill currently operating in Papua New Guinea. The wood processing industry is composed of 130 factories (sawmills, joineries, furniture factories etc.) employing around 4000 people, or just over 2 per cent of the country's wage-earning labour force (Papua New Guinea Office of Forests 1983:13). An equal number are probably employed in log cutting. There are fifteen major timber companies in Papua New Guinea, only three of which are majority Papua New Guinea owned: the foreign owners are mainly from Australia and Japan, respectively owning the older and newer

operations. Of the fifteen major timber companies, three are only involved in log export, while six are mainly involved in this activity (Papua New Guinea Office of Forests 1983:15).

Indeed, nearly 80 per cent by value (over 85 per cent by volume) of Papua New Guinea's total forest exports were, in 1982, simply the export of logs. The industry pays very little income tax, as declared profits are negligible: most companies show large accumulated losses. It cannot be an unrelated fact that most log exports are sold to the parent organization of the local operating company. The government sets minimum prices for logs exported under the Export (Control and Valuation) Act: however, the world market prices for Papua New Guinea's lesser known species are not easily determined. The most recent detailed analysis of the Papua New Guinea timber industry concluded that 'there appears to be a very substantial leakage of potential operating surpluses out of the system ... caused by inefficient operating by some mills, or by the practice of concealed transfers that some operators may make to parent companies' (Fraser 1981:31). While some would complain that such a conclusion results from an inadequate appreciation of the costs of doing business in Papua New Guinea, it would be a great surprise if operators had not taken advantage of this relatively easy way to lower taxes and convince the government that extra expenditure on further processing could not be afforded.

From negligible levels in the early 1950s exports of logs and other forest products have risen steadily to represent a peak of 12 per cent of Papua New Guinea's total exports in 1982, admittedly a year of higher than average prices for forest products. Yet despite this figure and the very high proportion of Papua New Guinea's land area covered in forests, '... timber harvesting, log exporting and processing contribute only about 3.2 per cent of GDP and about 1.2 per cent of Government revenue' (Fraser 1981:97). The high proportion of forest exports made up of logs, the lack of significant reforestation and the large accumulated losses of most timber companies explain the low level of economic benefit to the country from the forest industry.

(a) Forest policy. While early foreign timber operators in Papua New Guinea were mainly from Australia, the late 1960s and early 1970s saw at least five major Japanese companies begin operations. Contracts were signed which specified that log exports would cease after a period of time (often five years), by which time various processing and reforestation activities were to have been well under way. The government's main aim before 1978 was to encourage local processing, but in each case contractual obligations were not met. Of the three major operations which commenced in the early 1970s it appears that Nisho Iwai (at Stettin Bay) and Honshu (at Jant) never kept to their reforestation obligations; and Sohbu (at Open Bay) never built a promised veneer mill. At Open Bay, Sohbu's log exports were due to cease after five years

(1978) but they still continue and indeed presently constitute the company's only activity with the unfortunate loss through fire of their sawmill.

With companies signing these theoretically very favourable (to the government) contracts, the government kept on insisting on quite extravagant terms. Potential entrants were asked to stop all log exports in a few years, build large sawmills and other processing units, undertake extensive reforestation and provide all their own infrastructure in remote locations. This kept out the companies who had a greater respect for the sanctity of contracts. Before 1978, the government's forest policy had little effect and its objectives were not being achieved: indeed, the reverse was occurring with more and more log exports. Very few is any companies before 1978 were closed down by the government for not fulfilling their original contract.

Many older companies, particularly those relying heavily on sawmills for their revenues, were closing down voluntarily. During 1974-76 six sawmills ceased business, while all the rest were in grave financial difficulty except one processing only high quality logs. While transfer pricing was the suspected explanation for low logging profits or losses, a significant amount of sawn timber was sold at arm's length into Australia and elsewhere.

In 1977 the government conducted detailed surveys into the profitability of logging and sawmilling. The studies demonstrated that logging was very profitable, but that sawmilling was highly unprofitable. It was estimated that it cost K140 to produce a cubic metre of sawn timber, which on average would only fetch K110. If the log inputs were valued at their full opportunity cost (that is, at what they would earn on the export market), sawmilling was even more unprofitable. The upshot of this was that, first, if a company did honour its contract and process all logs cut, it could expect to make very large losses; second, if full log export was allowed and the resulting profits correctly assessed and taxed the money received by government would more than cover the costs of reforestation to replace what was cut and the sawmilling wages bill if all timber had been processed.

Sawmilling was unprofitable because of (i) the inability to use various lower quality offcuts in the small local market, leading to much lower log utilization in Papua New Guinea compared to, say, Japan; (ii) poor sawn timber prices because Papua New Guinea's species are relatively unknown; and (iii) difficult marketing problems due to the heterogeneity of the Papua New Guinea resources. Importing countries' policies no doubt favoured the import of logs rather than sawn timber, which may have been reflected in the relative prices of each product.

In 1979, the government unveiled a White Paper, titled 'Revised Forest Policy'. Its main elements reflected the findings

just quoted and were as follows (see Papua New Guinea Office of Forests 1979).

(i) A relaxation of restrictions on log exports, certainly for species not found in sufficient quantities to justify marketing as sawn timber. Only a minimum of 30 per cent of logs cut had to be locally processed by new foreign investors, unless the area contained a high proportion of well known species.

(ii) The existing log export tax of 5 per cent was doubled but a rebate representing the increase was to be paid if at least 30 per cent logs were processed (or a larger amount if this was specified in the concession agreement).

(iii) Log exports can have the advantage of making Papua New Guinea species better known. In addition, there was pressure from many local groups to see their resources developed, but few foreign investors would find it profitable to undertake projects with the required degree of processing in current market conditions. Given the lower financial and technical requirements of logging versus processing, the government saw an opportunity to meet its goal of increased national ownership by proposing to create national logging companies. These would be established in areas with a species mix unsuitable for processing (in that there was not a core group of dominant species) and would be 74 per cent Papua New Guinea owned the balance of the equity being taken by an overseas management partner.

(iv) The expected returns to the economy from logging would only be realized if steps were taken to ensure correct export prices for logs. In future contracts a clause was to be inserted giving government or its appointed representative the right of first refusal over the marketing of 25 per cent of each company's logs for export. The idea was that the government would either appoint or go into partnership with an international log trader. The trader would have the right to market sufficient of the product of the national logging companies (later called Forestry Development Companies, or FDCs) to have a marketing base.

(v) The government would put more emphasis on improving the performance of existing processors than on attracting new ones. In choosing any new foreign investors the government would be much more selective, being '... as concerned with who it will deal with as the deal itself' (Papua New Guinea Office of Forests 1979:9). The government would look closely at a company's management, marketing and financial competence and experience.

(vi) While foreign companies could substitute reforestation for processing to gain a concession, if they did undertake an obligation to process they would not in future be required to reforest. Government would undertake reforestation, using the higher export taxes on logs for finance. Companies had performed badly at reforestation in the past, and there had been serious delays in obtaining land from traditional landowners (logging required landowners to release their land for only a short period, reforestation included surrender for many years to come).

(vii) 'Whether or not alterations are made to existing Agreements or permits the Government will henceforth assume that all conditions are fair and reasonable, and it shall enforce all such conditions ... fully' (Papua New Guinea Office of Forests 1979:37). In future, the Papua New Guinea Office of Forests would have the automatic right to cut log exports proportionately to the non-fulfilment of processing obligations, in addition to any rights gained by claiming breach of contract.

(viii) Before 1979 the government had negotiated an option to acquire 26 per cent equity within the first five years and to acquire majority ownership at a later stage. These options had a cost to the government (in terms of other things that could have been requested) but had only rarely been exercised. In future the government would purchase at par at project commencement if it wanted equity and would bargain later if it wanted further shares (Papua New Guinea Office of Forests 1979:39).

(ix) 'Existing forestry legislation is in many respects obsolete, technically inadequate or inappropriate to deal effectively with the allocation and management of forest resources .... A revised National Forest Act ... will be presented to Parliament in 1979-80' (Papua New Guinea Office of Forests 1979:54).

The Revised Policy laid down clear packages: national, purely logging companies; limited log export in return for road construction (open to both foreign and national investors); and log export coupled with various specific forms of processing or reforestation. It sought to establish clear rules for each category that would then be enforced. Foreign investors taking large forest resources would have to process at least 30 per cent of the logs cut, would have incentives to process (no export tax is paid on sawn timber, the log export tax rebate is paid if processing obligations are met, and the general Export Incentive Scheme applied on processed exports rather than the export of logs) and penalties if they did not (the proportionate cut in their log export entitlement): but the type of processing (sawn, veneer, woodchip) was largely left to them.

The new policy therefore took account of prevailing market circumstances: it had decided reasonably clearly what it did and did not want from foreign investment.

(b) Recent performance. The government moved quickly to implement some aspects of the new policy. The log export tax was promptly doubled and the system of rebates for those meeting the processing requirements installed. Work started on the establishment of FDCs, two of which are now operating with others at different stages of implementation. The guidlines were presented to potential investors, and one agreement was very soon signed along the lines of the new policy.

In most respects, however, the new policy has not been put into effect. First, the government has still not appointed an agent to exercise the right of first refusal over the marketing of 25 per cent of each company's logs for export companies which now exists in a number of contracts. Second, no changes have been made to forestry legislation. Third, the government has not embarked on any major reforestation projects. Fourth, there has been only limited evidence of the government being willing to enforce existing contracts. Fifth, the government still shows a strong tendency to prefer inexperienced companies to develop its major forest areas. Finally, in its last major project negotiation at the time of writing the government appeared to have forgotten all the lessons that were behind the introduction of the 1979 policy. A review of recent experience illustrates these points.

During the formulation of the 1979 Revised Policy, negotiations were held with Hyundai International for the Kapalik resource in west New Britain: an agreement was signed after the revised policy was announced. In contrast with the government's policy, Hyundai had never undertaken a major forestry project before (Fraser 1981:63). The agreement signed saw Hyundai commit to build and operate a chipmill and undertake reforestation, while they were allowed (in conformity with the new policy) to export logs throughout the life of the agreement. The chipmill was constructed on time, but at the time of writing it had never been operated. The company complains that there is no market for the chips, even though the parent company in Korea apparently provided a guarantee that they would take them (information gained from discussions with Office of Forests staff). Reforestation did not occur, since profitability was adversely affected by not being able to use in the chipmill the trees that would be cut when the land was cleared — there have also been difficulties in acquiring the necessary land. While the government is apparently giving serious consideration to cutting the local company's log export quota, no action had been taken at the time of writing.

The FDCs are good in concept, but there now appears a danger that many will be started in areas that should not simply be logged, and where no reforestation or substitute long-term development will

occur. In addition to the two already started '... the Government hopes to set up ... seven further FDC's over the next three to four years' (Papua New Guinea Office of Forests 1983: Foreword). The two so far developed are at Kumisi, in the Northern Province, and Ulabo, in Milne Bay. Both have New Zealand companies as managers and minority equity holders. The former project apparently suffered from an inadequate initial assessment of the available resource, and could soon close. The latter, while facing some resource availability problems, is currently profitable. In neither project has the government established some permanent economic activity that can sustain the local community when the logs run out: the forest policy stated that projects would not proceed unless the follow-up land use program (reforestation, agriculture) was identified and funded (Papua New Guinea Office of Forests 1979:21-4). Presumably the political pressure to establish the FDCs was not matched by the bureaucracy implementation capability. 'Social dislocation may result from a temporary build up in economic activity followed by a rapid decline when the forest resource is logged out. This has been the experience with a number of export logging operations elsewhere' (Papua New Guinea Office of Forests 1979:21).

The government is well advanced in establishing two further FDCs, on Manus and Bougainville Islands respectively. Both projects await resolution of disputes between the provincial and national governments over who shall manage them. The proposal to establish a FDC on Manus is unfortunate. The resource is 61 per cent *Calophyllum*; no other Papua New Guinea resource has such a large concentration of one species making it particularly suitable for a large timber processing facility. The government had been discussing the Manus resource with the United Africa Corporation (UAC), a subsidiary of Unilever. UAC has substantial experience in timber projects in the third world. Agreement could not be reached on the company's proposals, which involved a period of early log export to test the market. When the UAC negotiations broke down, local clamour for development of the resource and the approaching expiry of the original TRP prompted the idea of establishing a FDC. It is ironic that such a move, involving only log export, should follow the rejection of UAC's proposals on the issue of an over-reliance on log exports in the early years.

Since the 1979 Revised Policy was released there have only been two major new forestry projects negotiated: one at Kapaluk that has already been discussed, and one a Vanimo which will be described shortly. In addition to the implementation of various FDCs, the period has seen the commencement of some smaller operations and the extension of existing projects.

The smaller operations have included direct dealings between landowners and foreign investors that have received the approval of the Minister for Forests, and some agreements allowing log export in return for road construction (including mainly foreign

or national companies already operating in Papua New Guinea). Direct dealings are increasing, and involve less onerous conditions for the foreign investor. The weakness of the forestry legislation in describing more than one mechanism for foreign investors to gain access to a timber resource, especially given the complex relationship between villager, provincial and national government, poses a serious threat to future forest policy and performance in Papua New Guinea. For a country to gain the most out of the exploitation of a natural resource one central body must have effective control over it. The success of minerals policy illustrates this.

Even though Sohbu's sawmill at Open Bay burnt down over four years ago, full log export has continued since then. A long period of negotiations has just concluded resulting in a grant to the company of new timber resources in return for reforestation and the construction of a chipmill. Nisho Iwai at Stettin Bay has also just concluded negotiations with the government, and was granted the Kapiura resource in return for a commitment to reforest certain areas. In both cases, therefore, companies that commenced operations in the early 1970s and which failed to honour their original contracts have been granted extensive areas of timber resurces with apparently fairly minimal and, in the case of reforestation, difficult to enforce conditions. Had the government in the early seventies offered the original timber resources seeking proposals similar to the actual performance of Sohbu and Nisho Iwai, one could easily imagine more experienced companies applying and being willing at minimum to pay much larger export taxes and agree to lower log export quotas. The enormous difference between the government's 'bark' and its 'bite' has been very costly.

(c) Vanimo. The Vanimo resource is generally agreed to be the nation's best: it is two to four times larger than most other Papua New Guinea resources with an operable area of 225,000 hectares and an estimated volume of over 13 million cubic metres of sawn/veneer logs of greater than 50 cm width, and a good species mix (24 per cent of the resource is the highly-prized *kwila* (Papua New Guinea Office of Forests 1983:8).

In 1980 companies were invited to submit proposals to develop the resource. Many were interested, including the experienced international operators UAC, Inchcape and Weyerhaeuser, Bunning Bros — a very experienced Australian company, and a few others. An initial deadline was set for the receipt of proposals which only one company met, the others complaining that it was too short to allow proper investigation of the resource. The deadline for the receipt of proposals was extended before the original date was reached. On the basis of the extension many companies expended large time and effort researching their proposals. Two weeks before the revised deadline, however, the government chose Hetura Meja, the company who met the first deadline, for detailed

negotiations. Hetura Meja (a Filipino company) had no timber experience whatsoever and little financial backing.

After long negotiations an agreement was signed with Hetura Meja in April 1982, just prior to an election which saw the defeat of the government of Julius Chan, which had come to power in early 1980. The agreement was terminated in January 1983, however, when Hetura Meja consistently failed to submit the financial and timber working plans required under their agreement: apparently they could not raise the necessary finance.

In January 1983, four of the previously unsuccessful companies (Inchcape, Bunnings, Weyerhaeuser and Hyundai) were invited to submit proposals within three months according to comprehensive guidelines. Within three to five years after project go-ahead these guidelines required the construction and operation of large saw, woodchip, planing and veneer mills, a kiln drying plant, the beginning of extensive reforestation and the generation of electricity surplus to project requirements for general sale by the government's generating authority. When all four companies complained strongly, the guidelines were substantially modified in October 1983. The new guidelines represented an enormous change: the proposed sawmill capacity was reduced by two-thirds, the other processing facilities were made optional although various studies were required, and the requirement to generate surplus power was removed. The companies were however given just two months to submit proposals. The two companies with the widest array and largest experience of international forestry operations declined the invitation.

In January 1984 the National Executive Council chose Hyundai over Bunnings. The Hyundai proposal apparently required much less capital expenditure: much more surprisingly, this was the company which by this time had demonstrably failed to meet its commitments at Kapuluk.

Detailed negotiations commenced with Hyundai but final agreement could not be reached and the company withdrew. In September 1984 the government commenced discussions with Bunnings and at the time of writing it is understood that full agreement has been reached.

It is useful to consider what might have happened had the government's original 1980 guidelines been similar to the late 1984 agreement reached with Bunnings and had a reasonable period of time allowed for proposals to be submitted. Not only would three years of wasted effort been saved and Papua New Guinea's reputation for dealing with foreign investors improved, but one suspects a much better deal could have been secured.

(d) Reflections on policy and performance. Forestry has been a sector from which high growth was expected in processed timber output, employment, government revenue and general contribution to GDP. Performance has continually fallen well short, however.

The problems have already been illustrated: pitching policy guidelines at unrealistic levels, choosing foreign companies inexperienced in major forest developments, and not enforcing contracts freely entered into. These problems are interrelated — the first problem may have led to the second, and both were strongly reinforced by the third. It must be extremely difficult to determine what a reasonable policy package is, much less negotiate it, when at least some of the companies are convinced that they will not have to live up to the agreements they sign.

The Institute of National Affairs (INA), sponsors of much extremely useful research on general (including forestry) policy problems within Papua New Guinea, obtained '... the opinions of some of the world's better known companies with experience in tropical timber ... to comment on their own absence from PNG activity ...'. They all blamed government policy and/or performance and many felt that those companies who are used to respecting contracts, or 'the serious investor, will be repelled.' The INA concluded that the results of their survey '... show quite clearly that the absence of the above companies from the PNG forest scene is certainly not due to ignorance of either the resource or the machinery of Government which prevails ...' (Fraser 1981:xii-xiii).

A major cause of the problems is the lack of clear objectives and widely accepted forest policy. Papua New Guinea's mining policy, for example, was formulated amidst wide public discussion and political involvement at the highest levels: anyone challenging it would have a very difficult task. Virtually the opposite is true of forest policy. Few politicians have been involved in its formulation as the sector has never become a major priority. Individual ministers can successfully sponsor proposals or initiatives which are against written policy. Another cause of the problems is the inadequate resources devoted to forestry within government. Forestry does not warrant its own department: the Office of Forests can find itself with many major and minor negotiations and few staff to deal with them, much less devote the enormous effort required to take action against an existing defaulting timber company.

Forestry is also an important arena of potential conflict between perceived national and provincial interests, and between both tiers of government and local communities. There are opportunities for political gain by local or national leaders who take a position in these disputes. There is potential for financial gain by leaders who can smooth the path of investors with either provincial or national authorities. These problems are increased by the failure of national government, to date, in

negotiating deals in forestry that are perceived to be fair to all parties and which yield genuine benefits both locally and nationally. This failure means that excessive windfall profits may be available to those who gain access to a forest resource.

To draw lessons from Papua New Guinea's forestry experience it would be helpful to understand why forestry policy objectives are unclear, and why the sector receives little political support, particularly in comparison with the mining sector. It is difficult to be certain, but possible to speculate. First, while the sector is large, each project is relatively small. Most existing projects would today cost no more than K30 million to construct. The Ok Tedi project had an estimated total cost of K1500 million in 1980. Second, there are more possible policy objectives — revenue, employment, training, promotion of entrepreneurial skills, provision of infrastructure in remote areas (roads, bridges, harbours) — no one objective obviously dominates, and they are difficult to balance against each other. Indeed, until the resource disappears, with the exception of raising revenue, all of these objectives are being partly achieved. People in the forest area, and perhaps some national politicians, will compare what they have with what they had, not with what could have been. Third, forestry is very land-intensive. In a Melanesian society with strong attachments to land and customary land ownership, landowners have important political influence. An existing investor may ensure his position by providing services and facilities (at low cost) to the landowners despite becoming extremely unpopular with headquarters forestry staff for being in default of the concession agreement. Finally, with its mix of species and sizes, product prices are more difficult to monitor. Government has been reluctant to adapt policy to observed performance.

These factors do not make successful policy impossible, rather they reinforce the need for compensating action. To improve forestry sector performance clear objectives must be listed, with priorities and trade-offs reflected in policy guidelines. This must be based on a sound understanding of the economics of different types of forestry activity. During and after policy formulation, a wide level of political and public support and awareness is necessary. Finally, there needs to be adequate bureaucratic resources devoted to implementation.

Papua New Guinea can still gain a very high return from its timber industry. Much of the forest is still unexploited and timber prices should increase in future in real terms, especially as other nations ban log exports and Papua New Guinea species become better known. The dangers in a continuation of current policies and performance are large, however. 'Most of the forests (of the tropical world) are being mined for timber with little regard for what is left or what replaces the natural forest .... Papua New Guinea is following the same pattern' (Fraser 1981:v). Until the government can make the appropriate changes it would be

well advised not to initiate many new projects and instead, devote its efforts to improving the existing ones.

12. Agriculture

Despite the country's low average population density, good available agricultural land is relatively scarce. Much of the country's terrain is mountainous and rugged. The soils are generally poor, often containing little humus. Most importantly, ownership of 97 per cent of the land is determined by customary occupation: acquiring land for foreign investment projects is difficult and time consuming, and once acquired title cannot always be guaranteed.

While Papua New Guinea has always been a rural based society, food production has been undertaken predominantly for subsistence and gift-exchange, and only to a limited extent for cash sales. The urban areas continue to rely heavily on imported food.

The effort required to invest in any foreign country, compounded in Papua New Guinea by the difficulties of acquiring land and NIDA registration, suggests a minimum size of agricultural project suitable for foreign investment. Given the fragmented nature and small size of the Papua New Guinea market, export crops are usually more attractive to foreign investors than producing to satisfy the local market. Experience in other countries of the political risk in domestic food pricing reinforces this.

Tree crop agriculture (coffee, cocoa, copra, tea and rubber) dominated Papua New Guinea's exports before Bougainville Copper Ltd started production in 1972. Prior to Ok Tedi commencing production in mid-1984 it still accounted for between 40 per cent and 45 per cent of Papua New Guinea's exports.

(a) Traditional agricultural exports — copra, cocoa and coffee. Copra production in Papua New Guinea started in the late 19th century and in the early 1920s comprised most of the country's exports. Its role is now relatively minor as other exports have grown to catch static copra production. Significant planting outside the foreign owned plantation sector only began in the late 1950s, and since then plantation production has steadily declined in importance to around 40 per cent of total production.

Government officials estimate the average plantation size is only 200 hectares, usually owned and managed by small expatriate family groups. With no access to redevelopment finance (commercial banks will not lend for long periods and the Development Bank cannot lend to non-citizens) these inherently uneconomic enterprises have been hit hard by rising fuel and labour costs since the early 1970s. An amalgamation of properties by those with outside finance is required, but this has long been prevented by explicit government policy (see below).

For copra, the Copra Marketing Board is the sole export body and purchases all copra produced (this and other industry boards are governed by statute but are not government agencies, and there has been dominant producer representation). It also administers the Copra Stabilization Fund. Legislation requires growers to pay a proportion of their revenues into the fund in years of high prices and receive the money back in years of low prices. The fund has helped producers: widely fluctuating prices could have been a strong disincentive to participation in the industry.

Cocoa plantations began operations in Papua New Guinea around the turn of the century. As with copra, foreign owned plantation holdings are generally small, and government officials estimate that nearly 70 per cent of the area of plantation cocoa comes from properties of less than 200 hectares.

The Cocoa Industry Board has wide powers over the processing and marketing of cocoa and is responsible for the Cocoa Stabilization Fund. The fund pays bounties or collects levies respectively equal to 50 per cent of the difference between the 10 year long term average cocoa price (adjusted for inflation) and the current price.

While coffee has been grown in Papua New Guinea since the last century, only since 1950 has it been grown on any scale. Plantations now account for only about 30 per cent of production. Several large exporters dominate the market, which is divided into quota sales to members of the International Coffee Organization (ICO) and sales to non-members at heavily discounted prices. There exists a Coffee Stabilization Fund which operates in the same way as the fund for cocoa, except that it also subsidizes sales to non-member countries which occur when quotas are imposed.

Unlike many similar stabilization funds overseas, the growers' money in all three funds has never been misappropriated: perhaps overseas experience has increased the vigilance of those responsible.

Table 8 provides a breakdown between foreign (virtually all plantation) and national (all smallholder) agriculture before Independence in FY1974/75. Most agricultural exports came from foreign owned plantations.

Pre-Independence colonial policy had been conducive to foreign investment in agriculture. An immediate write-off against tax for most capital expenditure was allowed, wages were very low and land was made available, often with freehold title. Such titles today make up about 1 per cent of land in Papua New Guinea.

The industry boards, with their control over marketing and cash flow (via the stabilization funds) have a positive impact on

existing plantations and smallholders. It is questionable, however, whether many foreign investors would have been willing to start large plantations given such arrangements. The issue never arose as post-Independence government policy no longer made land available: in fact it attempted to take land away from existing plantations.

After self-government was achieved in Papua New Guinea a potentially violent situation developed. Traditional owners in land short areas or in areas where inadequate compensation had previously been paid for land demanded the return of expatriate owned plantations. The only way, apparently, to defuse the situation, given the pivotal importance of traditional land to the people of Papua New Guinea, was to embark on a program of land acquisition from plantation owners in certain areas. Rather than use existing legislation the government's answer was to enact in 1974 four pieces of legislation that comprised the Plantation Redistribution Scheme (PRS).

As stated in 1981 by the then State Solicitor:

> The Plantation Redistribution Scheme is an example of overlegislation ... (it) goes into too great a detail in laying down the steps that must be taken and required consultation and discussion, promulgation of decisions and giving of notices at too many levels (Woods 1981:56).

While sixty-eight plantations had been acquired by 1982, the complexity of the legislation meant that none had been distributed in accordance with the procedures laid down, and no national group had acquired title.

Compounding problems, the acquisition price formula under the PRS allows room for government discretion and does not explicitly reward redevelopment expenditure made immediately prior to the acquisition. In addition, in 1974 the National Executive Council adopted the policy of not allowing any sales of existing plantations to expatriates.

For existing foreign investors the overall effect was, first, that there was no free market for the sale of plantations. Second, plantations were under continual threat of compulsory acquisition. Even in areas where there was no land shortage or historical grievance, the mere existence of the scheme could awaken interest in the traditional owners, who were not required to make an initial financial outlay. Third, the probability of a good return on current investment was greatly diminished.

The result was a sharp fall off in reinvestment and a decline in production which can be seen from Table 8 for copra, cocoa and rubber. Of more concern, many trees are now senile and poorly maintained and there has been little investment in research and

hybrid species. Production declines will continue in future even if reinvestment occurs. Contributing to the production decline from plantations is the inexperience of the new managers of plantations taken over and the fact that, in a number of cases, the people did not want a plantation, just their land.

The combined result of the PRS and the inability to sell plantations to foreigners hit copra plantations particularly badly. Though poor management and lack of redevelopment finance would have prevented some replanting, government policy ensured that it did not occur. Amalgamation and redeveloping copra plantations could at present be very profitable given projected prices and production costs for a large-scale venture. Potential yield increases from hybrid coconuts could also boost profitability: the hybrids are apparently available, but little planting has occurred to take advantage of them. Whether the amalgamation and redevelopment occurs depends on changes in government policy.

Government policy is also the main constraint to reinvestment and new investment in cocoa. Extensive additional areas of land exist and new investment would be very profitable, reinvestment even more so. Internal government estimates suggest that over US$100 million is needed to redevelop existing cocoa plantations, an amount of money which cannot be found inside Papua New Guinea.

Coffee plantations have fared better, however, because the industry is younger, with a smaller proportion of senile trees. Most of the transfers of plantations have been freely negotiated, and the new owners have a strong incentive to maintain profitability to finance the transaction.

From 1974 to 1979 no review of policy was undertaken. While many appreciated the problems associated with the scheme the issue was thought too politically sensitive. The 'nationalist', 'production' and 'benefits' schools could not agree on objectives for the plantation sector.

By 1979 however, the disastrous state of the plantation sector and the scheme itself commanded attention, and the Somare Government commissioned a review. The Review Committee recommended that, *inter alia*:

- the four Acts of the PRS be repealed and workable provisions be inserted into the Land Act for acquisition when land in an area is in short supply or to maintain a plantation's productive capacity;

- plantation acquisitions need to be identified well in advance to minimize uncertainty, preferably from the many willing vendors;

> the transfer price should be negotiated and only after this has failed should the compensation formula be used, suitably amended to recognize recent investment expenditure (Papua New Guinea 1979).

As a result of the Committee's report the new Chan Government in 1980 decided that no further acquisitions would be made. The relevant section of the Lands Department was abolished. It was also decided that agricultural leases could be transferred between expatriates and pre-1974 leases could be reissued to take certain plantations outside the PRS, in return for a promise to redevelop the plantation. Nevertheless, no legislative changes were made.

Limited reinvestment in plantations has since occurred. The effects on confidence of the policy changes have been strengthened by the inherent profitability of the investments and a trend amongst local landowners to accept the existence of foreign owned plantations, recognizing the benefits they can bring, now that the more vociferous initial demands for the return of alienated lands have been met. Some transfers of leases between non-citizens have been approved, but it is usual for an entire plantation owning company to be sold thus avoiding the need for government approval. No leases have been reissued.

At the time of writing a number of large new investment or reinvestment cocoa and copra projects are planned (there is little land available for new coffee investment and Papua New Guinea's exports now exceed the ICO quota in any event). It remains to be seen whether the potential projects will successfully overcome the PRS, the export licensing and monopoly marketing powers of the industry boards, and the enforced cash flow management of the stabilization funds. There is little indication that the government has sufficiently clarified its objectives to enable it to make the decisions that would enable these projects to proceed.

(b) New foreign investment in agriculture. The most recent large agricultural export projects to be started using foreign equity have been in oil palm. They have a large smallholder component, and 50 per cent government equity in each case; together with World Bank loans this has provided the necessary increase in investor confidence. The other 50 per cent equity was provided in each case by a single foreign partner who also manages the operation.

In the 1967 scheme at Hoskins the foreign partment was Harrisons and Crosfield; the United Kingdom's Commonwealth Development Corporation (CDC) was the partner in the more recent 1976 scheme at Popondetta. The 1972 Biala scheme originally started under Japanese management. Poor performance led to expropriation in 1976, and the substitution of the Belgian firm Sipef. The project's current success sets a useful precedent that those responsible for government forest policy could follow.

The nucleus estates provide all planting material, fruit transport, processing facilities, and research and advisory services to smallholders, making the schemes independent of the performance of the government's Department of Primary Industry (DPI). This has been one of oil palm's advantages over other forms of tree crop agriculture. Government does not even control product quality, and marketing is the sole responsibility of the foreign partner on a commission basis.

With the gradual introduction of the three schemes, oil palm production has increased steadily from just over 26,000 tonnes in 1977 to over 110,000 tonnes in 1984. It is sold mainly in Europe for refining into cooking oil. The three schemes have provided the only production and employment growth in the agricultural sector. Direct employment is provided to 5000 people and 4500 farmers depend on oil palm for their livelihood. Together this represents about 4 per cent of formal wage employment plus recorded self-employment (1980 census). This is significant and illustrates the potential of these schemes. At approximately US$25,000 capital cost per job, employment is created at a fraction of the cost in a mining project.

The total combined cost of the three schemes was over US$250 million at mid-1984 prices and exchange rates. One-quarter was the responsibility of government for general infrastructure and smallholder development, the latter outlay being repayable with interest from later production (there have as yet been no defaults). Three-quarters of the total investment is an equal contribution of equity and loans, respectively contributed and guaranteed by the government and private shareholders to each scheme.

All three schemes by 1984 had positive accumulated earnings and have production costs below what are felt to be long-term expected product prices. For 1984, a year of admittedly higher than average prices, the three schemes were (at the time of writing) expecting combined profits of around US$25 million, a good return on equity.

As incentives to these initial schemes government allowed the projects technical and marketing autonomy; a full write-off for agricultural investment (as distinct from investment in the factory); most of the infrastructure was provided free of charge; and it took 50 per cent of the equity and provided a similar proportion of the loan guarantees. With the problem of security of land tenure a significant financial commitment by government must have been vital.

In FY1983/84 the government introduced an oil palm stabilization fund similar to those already described for the other tree crops. While all smallholders immediately came into the fund, the nucleus estate companies were exempt, though the Minister for Primary Industry can bring them in at any time.

The financial returns from making crude oil are much larger than from further processing. The government has decided against subsidizing a marginal processing industry: its projected accounting profitability would probably closely resemble its projected net economic benefit (with the exception of shadow prices for labour) given the openness and lack of significant border taxes of the Papua New Guinea economy.

The oil palm industry has proven itself profitable in Papua New Guinea. The three existing schemes are continuing to expand beyond their initial scope. Both Harrisons and Crosfield and CDC are looking at new schemes, and in each case the government is negotiating for them to take 60-70 per cent of the equity to lower its own burden. In these negotiations, two policy issues have apparently arisen which were not of concern previously. One of the CDC's potential schemes centres on an existing plantation and requires the reissue of leases to remove them from the PRS: the government probably will not hesitate to do this. Creating more difficulty is the demand by the companies for guaranteed future exemption from the newly-established stabilization fund. The companies feel they can manage their own cash flows better than the fund, and must have some lingering concerns given the example of stabilization schemes in other countries (Ghana, for example).

Industry expansion will be restricted by such investor uncertainties and by the extent of the government's inability to allocate land to potential smallholders and estate companies.

(c) Import substitution. Since Independence foreign investors have not taken any serious interest in agriculture for import replacement. With a large degree of government prompting Japanese and other foreign companies have at different times conducted feasibility studies into rice production, but a combination of land and technical problems have so far prevented any practical result.

The only large-scale foreign investment in import replacement agriculture has been the foreign share of just over 40 per cent in Ramu Sugar. In 1978 the government commissioned Booker Agriculture International (BAI) to do a feasibility study for a project to meet the Papua New Guinea market for sugar. Unfortunately BAI was given assurances that they would construct and manage the project if it proved viable, without an early equity commitment from them. BAI concluded that such a project would be viable, choosing for the site an excellent piece of agricultural land then being used for cattle grazing. The government promptly announced the project would proceed and formed the Ramu Sugar Holdings Ltd.

It initially put its equity stake at 30 per cent, agreed to ban all imported sugar after project start-up and tried to interest potential investors. The International Finance Corporation, the commercial arm of the World Bank group, declined the

invitation, expressing the view (according to government officials) that various capital and operating costs appeared understated in the feasibility study. CDC took 30 per cent of the equity — they were already 50 per cent shareholders with government in one of the oil palm schemes, and were interested in other government associated projects. The project eventually achieved the required equity by an increase in the government stake to nearly 50 per cent and by subscription of small parcels of equity by a combination of public and private sector organizations. BAI eventually took only 5 per cent.

Government's equity investment was K12.5 million. The government also gave a K10 million infant industry loan in an effort to avoid having to guarantee all the project's loans. The loan was quickly drawn down after project start up in late 1982, and has since been converted to equity, taking total government investment in the project to K22.5 million, or approximately equal to the annual allocation of new projects in government budgets during the early eighties.

The combination of relying mainly on short-term (export credit) loans, higher than expected operating costs, slow closure of ports to imported sugar and losses from the strength of the United States' dollar have led to a very high sugar price to avoid project closure. The original project agreements assured Ramu Sugar of a sugar price linked to import parity. Before the project commenced production, but after most of the construction had been completed, the company asked to renegotiate the price. A bitter struggle followed both within government and with the company. Faced with the threat of stopping the project before any sugar was produced the government reluctantly increased the sugar price above the contractual level. The same threat has forced subsequent upward revisions. By October 1984 the sugar price received by Ramu Sugar was K760 a tonne, compared with a world price of one-sixth of this amount, and long-term guaranteed import prices into the United States and United Kingdom (for example, for Caribbean sugar) of much less than half the K760 figure.

Given the high import component of costs and expenditure from wages one can assume that Papua New Guinea is currently making a large foreign exchange loss on the project.

The government did not handle the establishment of the Ramu Sugar project well. Early decisions on the project were taken amidst fierce conflict between supporters of the 'benefits' and 'production' schools within the government. The internal debate focused, at least in the minds of many politicians, on whether or not to proceed with the project. The 'production' school, aided by the 'nationalist' school (attracted by government equity), won the day. The framework then set for the project precluded market scrutiny (e.g. those assessing the project, BAI, had, in

the management contract, an incentive for it to proceed whether or not it was profitable). The government created the impression that it had decided to have the project, whatever the cost.

(d) Overview of policy and performance. Consecutive Papua New Guinea governments have voiced three objectives for agricultural development. First, to increase Papua New Guinean involvement in agriculture: in different minds this objective has ranged from promoting smallholder production to a fervent nationalist call to remove all foreigners from possession of agricultural land. Second, to increase agricultural production to benefit the general economy: such sentiments were expressed without reference to the fact that most existing production came from foreign owned plantations. Third, to produce locally food items currently being imported.

This mix of objectives could have been pursued simultaneously with a well-thought-out policy which came to grips with the question of foreign investment in agriculture. Unfortunately it was not.

The government over-reacted to the initial demands of some traditional landowners for the return of their land. Successive governments compounded this problem by then ignoring the question of duration of non-citizens' tenure over agricultural land.

The failure to address this question led to problems with achieving the other two objectives. The oil palm nucleus estate projects cost the government heavily in terms of alternative expenditure priorities forgone. They were usually established with due regard for commercial principles, however, and can be regarded as successful. Politicians were frustrated by a lack of progress on import replacement. There arose a persistent danger that government would establish by decree a commercial project that was beyond its competence to manage or evaluate: the Ramu Sugar project was the result.

Was there an alternative approach to the question of land tenure by foreigners? Both in 1974 and 1984 a planned system of acquisition according to explicit criteria was and is required. One way to implement the policy in future might be to re-issue leases to plantations that are not located in areas of land shortage and where there is a binding commitment to reinvest. The issue becomes one of simply informing foreign investors where they are, and are not, welcome.

With the early 1980s world recession and Papua New Guinea's growing debt burden the government has placed major emphasis on increasing production and employment in all sectors of the economy. The government does not have the money or technical expertise to increase greatly agricultural production and employment. Foreign investment in some form is needed, and can have many positive

research and extension flow-on effects on smallholder production. The government should therefore decide on explicit objectives and formulate policies to give effect to them.

13. Fisheries

Foreign investors are involved in Papua New Guinea's tuna, prawn, lobster and barramundi industries. Excluding tuna, the other three products represent only 1 per cent of Papua New Guinea's exports and the catches of each are at or near their sustainable yield: these industries are of little future policy interest.

Papua New Guinea's tuna industry has enormous potential. Papua New Guinea waters lie astride the migration routes of major South Pacific stocks of tuna, particularly skipjack tuna. Within Papua New Guinea's 200 mile extended economic zone the fish are caught by resident company controlled pole-and-line vessels and off-shore based longliner (using a long line, with bait and hooks, submerged in the water for long periods at great depth) and purse-seine vessels (using large nets), The annual catch in Papua New Guinea waters ranged from 30,000 to 106,000 tonnes from 1972-80, or 1.25 to 4.60 per cent of world tuna production. Papua New Guinea ranks seventh in world tuna production and fourth in world skipjack production (Copes 1981:12-15).

> There is no doubt that the catch in PNG waters is still considerably below its maximum sustainable potential, however. It is not unreasonable to expect that a well-organised expansion of the fishery could sustain a catch level at least two or three times the current catch in PNG waters (Copes 1981:15).

Tuna exports from Papua New Guinea, or those tuna caught by resident companies, amount to 3 per cent of the country's exports and less than half the catch in Papua New Guinea waters. They rank as the country's fifth most important export. All the catch from Papua New Guinea waters could be taken by resident companies. Given this, and the possibility of increasing the total catch threefold, tuna exports can contribute greatly to the Papua New Guinea economy: if all the potential were to be realized, while other exports stayed roughly constant, raw tuna exports would be over 15 per cent of total Papua New Guinea exports. If the tuna were to be processed in Papua New Guinea (dried or canned) the contribution to exports would be greater.

(a) Structure of the current industry. Papua New Guinea has good baiting areas close to the migration paths of the skipjack. Two foreign companies started pole-and-line fishing in 1970, the number peaked at four during the 1970s, then reduced to two again in 1979. Those remaining were the American owned Star-Kist and the Japanese owned New Britain Fishing Industries (NBFI).

The two companies have shore-side installations to supply their ships with ice and general services and in some cases hold the catch. Most of the catch, however, is stored on mother ships (six were operating in Papua New Guinea in 1981) which accompany the fleet of pole-and-line vessels (forty-eight operating in 1981) and are transhipped to an export vessel.

Star-Kist and NBFI ceased fishing operations in 1981 as a result of a combination of depressed fish prices and the corporate plans (mainly the ability to catch sufficient fish elsewhere) of the parent companies. Strongly influencing the decision of Star-Kist was the ill-will created after the company's decision not to proceed with the construction of a tuna cannery (see below).

Domestic fishing operations recommenced in early 1984 when agreement was reached with the Japanese company Okinawa Kaigai Fisheries Co. Ltd. This company will reopen the Katsuobushi (smoked fish) plant which operated during 1974-79 and which has been the only tuna processing plant in Papua New Guinea employing fifty people.

Vessels based in Papua New Guinea sell their frozen raw fish to parent companies. In an attempt to combat transfer pricing the government established the Fish Marketing Corporation (FMC). This has the right, under statute, to purchase all exportable marine products on a right-of-first-refusal basis. If the FMC notices low transfer prices it can purchase the product and resell it (Copes 1981:43). This mechanism is potentially a good solution. Its practical success has fluctuated within Papua New Guinea, depending on the expertise of its staff and the resources made available to them.

The non-resident tuna fishing operations are mainly Japanese long-line fleets taking fish from deeper waters and aiming at a specialized market in Japan. In recent years many purse-seine vessels have also been fishing in Papua New Guinea waters; purse-seining has proved more productive and efficient than other methods. Since Papua New Guinea declared its 200 mile extended economic zone in 1978 vessels fishing for non-resident companies have had to pay licence fees to the Papua New Guinea Government in lieu of export tax. There have been many bitter disputes between the government and various American and Japanese boat-owner groups about these fees, leading in some years to very little licensed fishing in Papua New Guinea's 200 mile zone. The government is never sure how many vessels fish illegally: some surveillance is carried out, but comprehensive policing of the waters is beyond the nation's capacity. Licence fees represent the only return to Papua New Guinea from fish taken by non-resident company controlled vessels.

The government has been trying to encourage long-line and purse-seine vessels to base themselves in Papua New Guinea. The attractions to the catching vessels should be large, avoiding long trips to market and fuel costs. This is particularly important for the smaller long-line vessels. The government has, however, had no success.

The potential advantages to Papua New Guinea are large: there are value added gains from supplying the vessels, freezing and handling the catch and, most importantly, processing it. The long-line fish can be processed into specialized products, *katsuobushi* and *sashimi*, while purse-seine and pole-and-line caught tuna can be loined or canned.

Papua New Guinea has been at the forefront of attempts to establish a regional organization that would control all the tuna stocks in the southwest Pacific. The aim has been to negotiate as one, rather than have the island nations competing for the attention of the foreign fishing fleets who can catch the same fish in the waters of many nations (although Papua New Guinea is perhaps better placed than most). Regional cooperation is always difficult, however, as it must impinge on the sovereignty of individual states. Compounding the problem are the areas of high seas that separate the extended economic zones of some countries. Given this, for each country greater importance attaches to quickly having the largest number of fishing vessels based in their waters.

(b) A tuna cannery. One way to achieve this and other benefits is to encourage the establishment of a tuna cannery in the country, '... the local resource appears well in excess of the size required to sustain production of a canning plant of viable capacity' (Copes 1981:17). Such an installation could be the focus of an enlarged locally based fleet; it would directly employ around 300 people in the processing facility alone; it would add to the development of industrial and administrative skills within the country; and it would provide an inexpensive substitute for currently imported canned fish. Papua New Guinea imports about 20,000 tonnes of canned fish, mainly mackerel. Being non-perishable it can be handled easily by simple marketing methods throughout the country. From a tuna processing facility only the white meat can be exported to the very particular United States' market. The darker, no less nutritious meat becomes a by-product which could cheaply but profitably be made available locally. Imported canned mackerel contains much dark meat so no problems of consumer acceptance should arise.

In 1977 Star-Kist, one of the three largest United States tuna packers, submitted a proposal to the Papua New Guinea Government to establish a tuna cannery in Papua New Guinea. The proposal involved very limited financial exposure for Star-Kist, who submitted fairly old tuna vessels as their equity. The proposal was comprehensive, however. It was studied in detail by the Papua

New Guinea Government and the International Finance Corporation (IFC), the commercial arm of the World Bank, and found to be viable and of net benefit to the country. Star-Kist and the Papua New Guinea Government were to each hold 40 per cent of the shares, with 20 per cent hold by the IFC: the IFC was also responsible for all loan finance which would be free from the need for shareholder guarantees.

The project was negotiated over three to four years. The IFC submitted the project and its financing to its board on a number of occasions only to see deadlines expire as the deal could not be concluded. While the reasons for this could be laid at the door of each one of the parties at different times, the main problem was with the government. The project never became a sufficiently high priority to receive the full understanding and backing of senior politicians and public servants. This allowed various individuals continually to reopen different issues when they should have been settled, causing considerable anxiety within Star-Kist and the IFC.

The government originally (in 1977) directed that the cannery be located at Manus, at the time perhaps the second-best site in the country. Kavieng, in New Ireland Province, had the best baiting grounds and pole-and-line fishing record. At Manus, however, the project could utilize redundant defence facilities, would be quicker and cheaper to develop and could provide access to better purse-seine fishing, with the hope of making the cannery the focus of an enlarged locally based fleet.

Though a previous deal had been reached with senior defence force personnel on the use of Manus facilities, a change of personnel in FY1978/79 led to accusations that the project would compromise national security. Much more damaging was the role played by some national politicians who expressed repeated concern over the social aspects of the project. In particular, fears were expressed about the moral danger to which women of Manus would be exposed when the fishermen came ashore.

The government's reaction to all these attacks was unilaterally to switch the site of the project to Kavieng, a move which delighted New Ireland officials and upset those from the Manus Provincial Government. Such behaviour unsettled Star-Kist, although the company may well have been pleased with the guaranteed access this would give to the best baiting grounds. All the lengthy site studies by Star-Kist and the government, however, and the financial projections by the IFC, had to be redone.

Around FY1979/80 there were also changes in the composition of Fisheries Division staff. There was much in-fighting within the Division, a long neglected part of the administration. Two factions had developed: those in the ascendency in FY1977/78 thought the cannery project a key item in the overall fisheries

program, while the other faction took a critical view of the project (thinking it detracted attention and effort from village-based fisheries).

The time for the project had past and Star-Kist's corporate attention was turning elsewhere. The fatal blow was the depressed tuna prices of the early 1980s. The ill-will that had been created led Star-Kist to cease pole-and-line fishing operations in Papua New Guinea.

(c) Recent moves to establish a tuna cannery. The establishment of a tuna cannery remains the main component of Papua New Guinea's development plans for the fishing sector. The government's poor handling of the Star-Kist project did not reflect underlying general antagonism to the project, just the potential conflict between perceived national and provincial interests, and between both tiers of government and local communities, all with opportunities for political or other gain, that must be reconciled if any major project is to proceed.

Evidence for this comes with the government's attempt to establish a tuna cannery in 1983, the result of general frustration with the past failure. A consortium of Italian companies offered management assistance to establish a cannery and fishing fleet, and various members of the government were extremely enthusiastic. The project was well advanced in terms of political commitment and public awareness before previously unanswered questions on marketing, financing and overall viability brought it to a halt. These answers came when the government obtained an expert assessment of the project by an overseas company with no direct interest in the project. Without this, the government would probably have repeated the mistakes made in the implementation of the Ramu Sugar project (see Section 12), where no such assessment was made.

The government cannot undertake the cannery project without an experienced partner. The project needs a combination of experience, access to technology and particularly overseas marketing connections. The Star-Kist proposal would have seen these elements provided by a company with a significant equity interest. It also had the IFC as a potential watch-dog over transfer pricing and as the provider of finance that needed no government guarantees. Policy problems did not prevent it from proceeding, nor lack of finance. The problem was simply one of a lack of clear government objectives, planning and coordination.

14. Manufacturing

The manufacturing sector has alternatively been described as small and weak, with little scope for expansion (Coopers and Lybrand 1983:12), and as a sector that represents 10 per cent of

GDP and formal sector employment and saw growth of over 10 per cent per annum in real terms between 1973 and 1978 (World Bank 1982:44). The explanation of this apparent contradiction lies in the definition of manufacturing. The standard ISIC definition, used to derive the statistics, includes as manufacturing the processing of natural resources. Sawmilling and the processing of tea, coffee, cocoa and oil palm are therefore included.

The manufacturing sector divides into three main sub-sectors: 22 per cent of value added comes from wood and wood products industries; 40 per cent represents food, beverages and tobacco; and 26 per cent is made up of basic metal industries. A large part of food, beverages and tobacco consists of the processing of coffee, cocoa, tea and oil palm. Much of the rest of this sub-sector, plus the basic metal industries sub-sector, service the local economy and are fundamentally non-tradeable processing operations: they have enjoyed a high degree of 'natural' protection. Examples include soft drinks, biscuits, bakeries, sheet metal work, general engineering and motor vehicle repairs. Such services were in short supply around the mid-seventies, partly as a result of the uncertainties surrounding Independence, and much of the rapid growth in the manufacturing sector can be attributed to the catch up.

Manufacturing exports are insignificant. The most striking example of a non-resource related export is recent beer sales to California. An unusually high per capita local consumption provided a good base for expansion.

We have already dwelt at length on the small size of the local Papua New Guinea market, the difficulties associated with acquiring land, labour and NIDA registration, and the relatively high wages for unskilled and semi-skilled workers. Combined with the backloading of ships that take Papua New Guinea's natural resources to export markets, most tradeable manufactured goods can presently be supplied more cheaply from overseas than from domestic production.

Government policy for the manufacturing sector has always been confused and a subject of great controversy in Papua New Guinea. The main battles between the 'benefits' and 'production' schools have been fought in this area: the evolution of Papua New Guinea's fiscal incentives provided an example.

The policy debate has been little concerned with the foreignness of the investment. With the exception of the difficulties of obtaining NIDA registration, the policy for foreign investors in this sector can be best understood by a discussion of general sectoral policy. Having already discussed fiscal incentives, a discussion of protection policy is now required.

(a) Manufacturing sector policy. There has been a lack of consensus on the objectives for the manufacturing sector. Individual projects that came under scrutiny were not large so there was rarely the same political interest that mining and some natural resource projects could command. The confusion of objectives largely arose out of a difference of view over rural to urban migration, as previously discussed (Section 5). Those broadly belonging to the 'production' school would argue that people will continue to migrate to the towns, being attracted by the 'bright lights', and that given the low rate of urban job creation from other sectors simple arithmetic suggested the need for the manufacturing sector to take job creation as its overriding objective — almost irrespective of cost. The 'benefits' school saw only a small role for the manufacturing sector, given its perceived comparative advantage: policies should help it serve the rest of the economy, not subtract from it (through the cost of subsidies and other forms of assistance).

The proponents of high growth in the manufacturing sector chose protection and, to a lesser extent, the provision of fiscal incentives as the principal instruments to achieve their ends. Had the policy effort been focused on overcoming government-created bottle-necks, making adjustments to the wage system to suit the manufacturing sector and trying to guide investors through the maze of government policy and regulation,much more consensus and progress would have been achieved. We have already described the array of bottle-necks facing investors. A coordinated push from all relevant government departments and industry groups on the wages front might have achieved, for example, a wider acceptance of wages tied to performance and a lowering of wages for youth.

With the main policy discussion in manufacturing policy centred on protection, however, an area of considerable disagreement within government, the policy differences within the sector were made to seem exaggerated. Those in favour were often frustrated by what they saw as a lack of growth. If Papua New Guinea imported an item in significant quantities there usually existed a rate of protection that would make local production viable. Since each individual item was inevitably only a small proportion of total industry costs, the proponents felt that the cost of protection was small. The country wanted increased employment and production, and protection appeared an assured way to achieve these.

By the end of the 1970s the arguments for and against having a fully integrated and foreign owned cement project using local limestone were an established part of the protection debate. Both sides were agreed on the basic economics — the project would double the price of cement in Papua New Guinea and, at least in its initial years, cause a net loss of foreign exchange to the economy. Those in favour of the project felt that cement manu-

facture was a vital ingredient of a local manufacturing base. If the 'positive' attitude they hoped the government would show on this project were applied to others, then the industrial base of the country would expand, so would the demand for cement, and the project would eventually be viable. It was a matter of starting somewhere.

In addition to the cost of the initial foreign exchange loss those opposing the project could see this experience being magnified many times over once the protection floodgate was open. The costs of such action (with associated infrastructure and subsidies) would seriously divert funds from development of the rural areas where most people lived. Even more importantly, costs to exporters would increase on many fronts so retarding their growth, only to the benefit of projects ultimately constrained by the small size of the Papua New Guinea market. The growth of the whole economy would therefore suffer.

We have already stated that the 'benefits' school was largely in control of most aspects of economic policy during the seventies and early eighties. This, and the general appeal of policies that favur rural development in a society that places so much emphasis on the village, allowed the cement protection proposal to be resisted.

Stated government policy on protection since Independence has usually been consistent and not reflected disputes such as that just described. Successive governments have said that inefficient industries will not be protected or subsidized. The Infant Industry Loan Scheme is a practical consequence of such a policy, as is government preference for start-up assistance with infrastructure rather than assistance which could be relied on indefinitely. In exceptional cases where temporary import bans were used to assist establishment of an industry, the government insisted on import parity pricing. Ministers have changed portfolios often in the past, requests for protection have been frequent and the initial appeal of such requests so strong, however, that the stated policy has not, and arguably could not, always be adhered to.

A major deviation from stated policy has been the Ramu Sugar project (see Section 12). Although a sugar ban coupled with import parity pricing was negotiated, when the project ran into trouble soon after production commenced it successfully pressed the government for further support. By late 1984 sugar prices in Papua New Guinea were three to four times import parity.

The government's resolve has generally held better with companies having higher levels of foreign ownership. In the late 1970s a steel rolling mill was established in Papua New Guinea with 100 per cent foreign equity. Government officials could not see how the project could be profitable given the small market and

its reliance on imported raw materials. Since the project sponsors requested no protection or subsidy, however, it was allowed to proceed. It was no surpirse that immediately after start-up its owner asked for protection, even though a sceptical government had sent a letter at the time construction commenced warning that protection would not subsequently be given. The government kept its promise and the factory closed shortly after production commenced. It is a memorial to the perceived uncertainty of the government's protection policy.

(b) Recent developments. In February 1984 the government issued a White Paper on Industrial Development. We have described elsewhere the fiscal incentives this document foreshadowed (Section 9).

The paper recognizes the limits of an import substitution policy for an economy such as Papua New Guinea and stresses the benefits of an export orientation to industrial policy. It stresses reliance on the private sector for growth and the need to rely in part on foreign investment. Apart from the fiscal incentives it mentions the work of the GRAC, foreshadows automatic fifteen-year NIDA registration for foreign investors in manufacturing and promises that the newly created Department of Industrial Development will act as a 'one stop shop' for investors wishing to approach government (Papua New Guinea 1984).

It is unfortunate that the opportunity was not taken to forge a workable protection policy rather than simply stating principles. What was needed was agreement on clear guidelines for the granting of protection, with perhaps some upper limit on the effective rate of protection granted to any industry.

It is not surprising, therefore that at the time of writing strong moves are again being made to reformulate tariff policy, with little emphasis on economic considerations, and to move it from the Ministry of Foreign Affairs to Industrial Development. Tariff policy is seen as a quick way to increase production and employment in response to a worsening law and order problem. The dangers this attitude represents to the export sector and economic growth are large. Widespread protection for local production or assembly of presently imported goods could, one imagines, adversely and decisively affect a future tuna cannery or furniture factory and many existing sawmills. In addition, much of the government's revenue comes from the export sector and this would be significantly affected.

A major potential cost of the newly emerging debate on protection is again its ability to divert attention from the implementation of other policies that would be of clear benefit to the economy. In this regard it remains to be seen what practical changes occur from the work of the GRAC in relation to land, labour and NIDA registration, and whether the Department of Industrial Development provides an effective 'one stop shop'.

15. Conclusions

In this monograph we have concentrated on analysis of Papua New Guinea's economic position, the consequent logic of its development strategy (including short-term economic policy) and the place within that strategy of foreign investment policy in general and specific policy and performance in a number of sectors. The sectors chosen for detailed study were mining and petroleum, renewable natural resources forestry and fishing, and agriculture and manufacturing: the first two received early and intensive government attention, with a high degree of success (measured in terms of both capital inflow and realized national benefits), while the others proved much more difficult areas in which to formulate clear government objectives and policies, and even more difficult areas in which, once formulated, to carry them out.

In some respects it may be easier to formulate policy and objectives in the mining and petroleum sectors: individual projects are more capital intensive, complex and bring larger benefits to the economy. However the same defects in policy and performance that affected other sectors in Papua New Guinea have appeared in many other countries' mining and petroleum sectors — and fisheries and manufacturing are less land intensive than minerals ventures, an important difference in Papua New Guinea. Mining and petroleum policy may appear easier in Papua New Guinea because it has been successful.

The enormous difference in the performance of the various sectors is not, to any significant extent, because of their inherent physical differences. In the forestry, fishing, manufacturing and agriculture sectors we saw confusion of objectives, insufficient political attention to and public debate of policy, which was then poorly administered. The extremely poor performance in these sectors may prompt observers to conclude that foreign investment cannot bring net benefits: that governments should consider nationalizing existing investments and starting major new ventures with significant levels of national equity. The performance in the mineral and petroleum sectors indicates that such a conclusion would be incorrect.

In mining and petroleum we have seen the importance (and benefits) of linking sectoral strategies for foreign investment with a clearly articulated, and realistic development strategy. The selection of a single overriding objective, revenue maximization, and an innovative approach to its achievement, has clearly simplified the long-term conduct of minerals policy in Papua New Guinea. The potentially powerful negotiating position of international companies has been successfully challenged, and turned to national advantage, by combining clear objectives with underlying economic strength (the role of macroeconomic policy), and sound organization of government negotiating teams, up to the

political level through to judicious use of outside financial and technical advisers.

The minerals experience in Papua New Guinea perhaps reverses some earlier preconceptions about appropriate ways to secure maximum national benefit from the operations of multinational companies. A company with major equity at risk, and thus a strong interest in project profitability, is likely both to perform more efficiently and to place greater value on the long-term stability of its relations with the host country than is a minor shareholder, management contractor or mere supplier of technology. We have seen how the state can maximize its return by understanding investor objectives and designing fiscal and state participation terms to meet the investor's minimum needs — no less, but no more. The state has a clear interest in organizing incentives so that a mining investor will delineate a target orebody, or commit to a major investment sooner rather than later, and will eventually work the resource with minimum waste of low-grade material.

State equity ownership is not essential to meet revenue, foreign exchange, or even limited control objectives; indeed, it may often involve unnecessary risk exposure for the state and function, in effect, as a concession to the foreign investor.

The value of sound, uncorrupt and reasonably well-organized administration will be evident. When this is combined with progress towards equitable and self-adjusting fiscal terms then renegotiations (such as Bougainville in 1974) to achieve perceived fairness do not necessarily deter other potential investors. Indeed, a case could be made that the opposite is true.

It has been suggested that the high priority given to mineral projects has detracted '... from the badly needed analysis and scrutiny of the forestry and, to a considerable extent, agricultural sectors' (Fraser 1981:33). It was appropriate for the Papua New Guinea Government to concentrate on the mining and petroleum sectors and settle objectives, policy and major implementation issues before turning seriously to other sectors: the relative rewards are much greater and, at a time when there were many pressing priorities, it would not have been wise for the government to spread itself too thinly. In the 1980s the need for a shift of emphasis has become clear, but such a shift is only possible because of previous success with minerals policy.

The government has very sensibly not just dealt effectively with issues as they arose in mining and petroleum, but has revised the Mining and Petroleum Acts, enacted standard tax provisions for these sectors, and integrated all this with model agreements. The package of documents can be passed to interested investors and agreements signed with little delay. The enormous concentration of effort that was required from 1974-80 should not be required again, although serious implementation problems will always occur

(at the time of writing protracted negotiations were occurring in relation to Stage 2 of the Ok Tedi project). Now that the macroeconomic crisis (associated with the 1979-80 oil price rise, the fall in BCL output and the general collapse of commodity prices) has been contained, the government can begin the attempt to realize the enormous potential for increasing income earning opportunities in particularly the agriculture and forestry sectors. The successful implementation of sound foreign investment policies will have a large role to play.

The proper allocation of scarce governmental promotion and negotiating effort, however, is a central issue in foreign investment policy and, indeed, in development strategy as a whole. As we have seen from both the positive and negative examples, the requirement in terms of political attention, technical and policy analysis skills, and negotiating effort for successful development and implementation of sectoral policy is very large. Taking all potential sectors of foreign investment together it greatly exceeds the resources available to a country such as Papua New Guinea. A coherent view of development strategy and potential benefits is therefore necessary so that this allocation can be made. A reliance on private investment, market-determined price signals, and comparative advantage does not absolve a government from the need to work out how to approach and respond to private investors.

Our analysis suggests the following lessons for establishing and conducting foreign investment policy in Papua New Guinea and, indeed, in developing countries generally.

(i) The administration of policy and legislation for each natural resource should rest clearly with one central body not a multiplicity of agencies (this is not currently the case with forest resources). That body should take responsibility for organizing the inter-departmental negotiating teams that are needed for specific projects, and for incorporating provincial interests.

(ii) Policy formulation needs high level political involvement, access to the best available technical advice, even if it must be hired overseas, and a campaign of public awareness (the mining and petroleum sectors contrast with all other sectors).

(iii) The smallest possible number of objectives must be formulated and stated for each sector, with trade-offs between multiple objectives clearly stated (the mining sector contrasts particularly with the agricultural sector).

(iv) Sectoral policies must be targeted at real constraints (the time spent debating fiscal incentives for the

manufacturing sector could have been better spent) and must be linked firmly and explicitly with the nation's overall development strategy (as was the case with mining).

(v) The government should understand the comparative economics of different stages of production in Papua New Guinea relative to international competitive ventures. Such a quantification must discount for any investor uncertainty (e.g. unfamiliar species in forestry, land tenure in agriculture). This knowledge will enable the government to appreciate most investors' walk-away positions (such knowledge was gained when formulating mining, petroleum and forestry policy — in the latter sector the value of such an exercise was demonstrated but the lessons soon forgotten).

(vi) Foreign investors will be of most use to the country when they have a direct interest in project profitability (contrast the Ramu Sugar project with the national benefits gained from BCL).

(vii) Government negotiating teams should have clear links with and the full support of senior politicians (forestry negotiating teams have often been undermined by political interventions outside stated government policy).

(viii) Countries are in a relatively poor negotiating position without underlying macroeconomic stability (Papua New Guinea could not have negotiated the Ok Tedi project as successfully had it been in chronic balance of payments difficulties).

(ix) While fair agreements must be upheld governments are nevertheless in a good position to renegotiate those that are significantly out of line with world practice (Papua New Guinea has benefited greatly from renegotiating the BCL contract).

(x) Once the effort has successfully been made to formulate and implement policy in one sector, the lessons should, where appropriate, be enshrined in legislation and model agreements so that previous effort does not have to be duplicated. Leaving open one or two carefully chosen areas can cater for different project characteristics (in mining Papua New Guinea has, within defined limits, left open the extent of its minority equity position and any contribution it may make to the provision of project infrastructure).

(xi) Finally, investors should not be encouraged to feel that official policy can be avoided by one means or another — established policy and procedures will then be progressively undermined (in mining negotiations the Papua New Guinea Government ensured there could be no misunderstanding on this issue: investors interested in Papua New Guinea's timber, however, may well feel tempted to explore unofficial channels).

Appendix 1 Published reserves from mines and major gold prospects in Papua New Guinea

Panguna mine

Reserves at the end of 1983 were about 720 m tonnes averaging 0.4% Cu and 0.46 gm/t Au.

Ok Tedi mine

Proven reserves of 410 m tonnes comprising 34 m tonnes at 2.87 gm/t Au in a surficial cap, underlain by 35% m tonnes grading 0.7% Cu, 0.6 gm/t Au and 0.011% Mo with a further 25 m tonnes averaging 1.17% Cu, below that again (*Min. Ann. Rev.*, 1983).

Frieda prospect

Estimates of the mineralization are:

Horse-Ivaal area	500 m tonnes at 0.5% Cu, 0.28 gm/t Au
Koki area	260 m tonnes at 0.4% Cu, 0.23 gm/t Au (*MIM Ann. Rept.*, 1981).

Yandera Cu prospect

Reserves presented in the *Financial Review* (1977) were 540 m tonnes at 0.65% Cu equivalent using a 0.4% Cu cut off.

Porgera prospect

Reserves are estimated to be in three parts (a) 59 m tonnes averaging 3.3 gm/t Au, 14.5 gm/t Ag, (b) 16 m tonnes at 6.9 gm/t Au and 9.0 gm/t Ag, (c) 1 m tonnes at 35.0 gm/t Au and 55.0 gm/t Ag. Cut-off 0.5 gm/t Au.

Misima prospect

Estimated reserves are at 45 m tonnes averaging 1.42 gm/t Au and 20.6 gm/t Ag.

Wau area

Current reserves at Upper Ridges mine are 960,000 tonnes averaging 2.4 gm/t Au and 7 gm/t Ag with probable reserves of 670,000 tonnes at 2.3 gm/t Au and 7 gm/t Ag.

Laloki prospect

315,000 tonnes grading 4.3% Cu, 1.3% Zn, 6.4 gm/t Ag and 3.5 gm/t Au.

Arie prospect

165 m tonnes grading 0.32% Cu (*Min. Jour.*, 7 July 1978).

Ladolam prospect (Lihir)

75.6 m tonnes at 3.25 gm/t Au.

Notes:

Au	gold
Ag	silver
Cu	copper
gm/t	gram per tonne

Sources: Rogerson, Williamson and Francis (1984: Table 1); Bougainville Copper Limited (1984:12) and information from the Department of Minerals and Energy, Konedobu (1985).

Appendix 2 The stock of foreign investment in Papua New Guinea

A formal survey of private overseas investment in Papua New Guinea has not been conducted since 1976/77 (Papua New Guinea National Statistical Office 1978). That survey distinguished between 'direct investment' on the one hand, and 'portfolio investment and institutional loans'. Both were valued at the historical cost of investments made or loans drawn down. Portfolio investment, on an historical cost basis, can be regarded as negligible: even the largest element — the 23 per cent foreign public shareholding in Bougainville Copper Limited — amounted only to about K27 million, and there have since been few instances of new sales of shares in Papua New Guinea companies to foreign portfolio investors. Accordingly, we can regard the portfolio element as fixed and treat all but direct investment as 'loans'.

The 1976/77 survey values direct investment at K408 million (US$514 million at the 1977 exchange rate), and 'loans' at K143 million (US$180 million). If we apply to these stocks the Bank of Papua New Guinea's recorded net flows of foreign private investment, reinvestment and private borrowing from the balance of payments statistics (Table A.11), we reach a 1983 stock of K768 million for direct investment and K560 million for 'loans'. Applying annual US$/kina exchange rates to these flows, the corresponding dollar figures are US$993 million for direct investment and US$731 million for 'loans'. It must not be forgotten that these are historical cost estimates, net of loan repayments and disinvestment, and bear no necessary relation to the potential international market value of the companies or investments concerned, nor to the replacement value of the assets installed. Nor does the direct investment figure reflect the value of shareholders' funds in foreign owned companies.

In contrast, the Bank of Papua New Guinea's survey of private external debt outstanding at the end of 1983 found a total of US$859 million, valued at current exchange rates (that is, estimated repayment cost). The Bank of Papua New Guinea figures also include external commercial debt incurred by government owned companies and statutory public enterprises, whereas the 1976/77 survey apparently was restricted to 'private enterprises'. Allowing for these complications, the debt estimate arrived at by the method described appears reasonable. If this is allowed, then an estimate of about one billion US dollars for the undepreciated historical cost of the stock of direct foreign investment (net of known disinvestment) also seems appropriate. The historical cost of the combined stock of debt outstanding and net equity financed foreign investment would then stand in the region of US$1.7 billion to US$2 billion at the end of 1983. Since Ok Tedi's first stage was not quite complete at this date, and since Stage 2 investment is due to begin, the total sum will increase significantly during 1984 and 1985. To the extent that debt has been repaid, but initially debt-financed assets remain part of the stock of direct foreign investment, these figures will undervalue the stock.

Appendix 3 Government of Papua New Guinea Industrial Information Pamphlet No.18 prepared for the Papua New Guinea-Australia Investment Promotion Conference, 1979

Investment incentives

Papua New Guinea has consistently recognized the need for foreign investment in developing its economic potential. In practice, Papua New Guinea's investment policy encourages foreign investment in all business activities except those reserved exclusively for national involvement. The latter are identified as 'reserved activities' in the National Investment Priorities Schedule (NIPS) and encompass categories of agricultural production and associated first-stage processing, inland fishing, primary commodity trading, and land transport services where Papua New Guineans have the requisite skills and capital resources.

Within NIPS guidelines, Papua New Guinea's welcome to foreign enterprises extends to various non-equity arrangements, such as licensing agreements, purchasing contracts, and service agreements involving technical, management and marketing services. These alternative forms of interface between Papua New Guinea and foreign enterprises are in early stages of development, but are being actively promoted.

The government strongly believes that the most effective way of promoting foreign investment is the pursuit of macroeconomic policies that create confidence in present and future stability. The strong accent on stabilization in both internal and external financial policies is deserving of investor confidence. In particular, Papua New Guinea's policy framework has avoided the need for exchange control restrictions and has established the country as a creditworthy borrower in commercial international money markets.

Nevertheless, the government appreciates the need for a program of wide-ranging investment incentives that reflect awareness of certain disadvantages that Papua New Guinea presents to certain potential investors, namely, the small size of the domestic market, and the associated high costs of distribution.

In addition to the general investment incentives listed below, specific sectoral policies relating to large scale investment in the petroleum, mining, fishing and forestry industries have been or will be embodied in legislation and policy statements, which will be of extraordinary importance to investment decisions in these sectors.

The following new tax and financial incentives, which will be contained in Papua New Guinea's 1980 Budget reflect government's commitment to insuring a positive investment climate:

1. Accelerated depreciation

This incentive allows a greater claim for depreciation in the year of capital purchase, and thus means less assessable income and less tax paid.

It is intended that this incentive be made available to the following sectors:

manufacturing
transport and communication
building and construction
business service;

for items of investment which have a useful life of over five years. It is considered that the retail, fishing, forestry and mining sectors do not require such an incentive, while agricultural investment can already be written off in the year of expenditure. The restriction to investment with a life of over five years is intended to direct the incentive towards long-term capital investment rather than merely replacement of items with a short life such as motor vehicles. Eligible investors will be allowed to claim 20 per cent of the cost of the investment in the year of purchase as an additional allowance over what would otherwise be allowed. For the remaining life of the asset normal depreciation would apply on the residual value of the capital equipment.

The following example sets out the effect of the proposals for a machine purchased costing K100 with a life of ten years.

Year	1	2	3	4	5	6	7	8	9	10
Straight line depreciation										
- without scheme	10	10	10	10	10	10	10	10	10	10
- with scheme	30	10	10	10	10	10	10	10	0	0
Reducing balance depreciation										
- with scheme	15	12.75	10.84	9.21	7.83	6.66	5.66	4.81	4.09	3.47
- without scheme	35	9.75	8.29	7.04	5.99	5.09	4.33	3.58	3.12	2.66

Thus, the scheme allows 100 per cent depreciation but on an accelerated basis, thus providing earlier recovery of investment costs which is a major consideration in investment decisions.

2. Training scheme

This scheme will allow a 200 per cent deduction from assessable income or wages paid to apprentices registered with the Apprenticeship Board of Papua New Guinea.

The purpose is to encourage employers to hire apprentices to build up the industrial and commercial skills of Papua New Guineans so that their contribution to the economy can increase over time. As government asks employers to incur costs in training, it is appropriate for the government to offset some of these costs through its tax policies.

3. Provision of infrastructure for general and decentralized industries

The government will provide the necessary infrastructure, including buildings, to investors for new industrial projects in return for a negotiated user charge payable annually over the life of the project.

General user charge

The general user charge will be designed to yield the government a return on its capital and as such will not be directly related to the use made of the capital goods provided. The rate charged will be a commercial rate reflecting:

the government's risk exposure;
the expected return of the investor on his equity;
the alternative uses to which government funds can be applied.

Repayment of the user charge will rank behind senior project debt and will be secured only by the project itself, and not by its shareholders or parent company. In the event of default, however, title to the infrastructure will revert to the government.

The advantage of this scheme to a potential investor is a lowering of 'front-end risk' (or initial financial exposure) as the investor will need less capital to start the project.

The government will provide financing to build infrastructure but will not construct the project. Eligibility extends to all investors for all types of industries.

Decentralization user charge

The government will provide an additional infrastructure-related incentive to industries locating outside urbanized areas as Port Moresby, Lae and Arawa-Kieta-Panguna. Thus, on a case by case basis the government may negotiate a lower user charge considering both the general factors stated above and also the remoteness of the area chosen for location and the influence provision of infrastructure would have on the location decision. In the case of infrastructure provided in remote locations, the government would be

prepared to negotiate a user charge close to its marginal (commercial) cost of borrowing.

This lower (decentralization) user charge would not apply to industries involved in export of raw materials or where location is dependent on nearness to an essential natural resource (e.g. fish, timber, agricultural land, water, etc.).

Under both the general and decentralization elements of this scheme the minimum project size will generally be K300,000 though in special priority cases smaller investments could be considered. It is anticipated that applications will be received by the Minister of Finance during 1980.

Other tax and financial incentives

In addition to the above, there are many other schemes and policies which encourage favourable investment decisions.

1. Export Incentive Scheme (EIS) for manufactured goods

The logic behind export assistance as an investment incentive is that investment in import substitution industries will be accelerated if access to export markets is also encouraged. Thus the scheme is designed to improve the sales prospects of manufactured exports by reducing associated tax liabilities, and so expand the market potential.

EIS exempts from company tax 50 per cent of the profits related to the growth in export sales in the current year over the average value of export sales for the preceding three years. Thus, export sales growth is rewarded by reduced taxation. Where companies in any year make a profit on exports but a loss on overall operations, benefits accruing under the scheme can be carried forward for two years after they are earned.

Certain products which are presently manufactured in Papua New Guinea or will be manufactured in the near future have been approved for inclusion in EIS.

Activated carbon
Artifacts
Beverages ready for consumption
Biscuits, snack food
Canned, loined and smoked fish
Canned fruit and vegetables
Cement and concrete products
Chopsticks
Cigarettes
Clothing and manufactured textiles
Confectionary
Dairy Products
Dry cell batteries
Electrical appliances
Essential oils/ oleoresins
Fabricated products
Fishing nets
Flexible packaging
Foam products
Founded and manufactured metal products
Glass products
Hand tools
Industrial and medical gases
Jewellery
Livestock feeds
Matches
Motor vehicles

Paints	Ship and boat building and repairing
Paper products	Soap
Plastic products	Treated and processed crocodile skins
Processed and canned meat products	Wood pulp
Sawn timber, mouldings, plywood and laminated products	Wooden furniture components and doors

However, any investor may request the Minister for Finance to add new products to the list.

2. Infant Industry Loan (IIL) Scheme

Government will consider a standby loan facility upon project commencement for firms that can identify possible financial problems in the early years of the project. Such problems would usually be those identified when seeking commercial finance and might include low debt cover ratios in early stages, uncertain capability to service debt or in certain priority cases, a concern about availability of funds to meet cost overruns.

In such situations the government may provide funds to meet the specified contingency. Such a standby loan, being unsecured, would not affect the raising of capital or debt financing on commercial terms and would greatly enhance the attractiveness of a project to commercial lenders.

However, IIL is not intended as a substitute for normal commercial loans and would ordinarily contain the following provisions:

- repayment as soon as possible without rescheduling any other debts;
- no dividends declared while the infant industry loan is outstanding;
- interest rate marginally higher than other commercial project funds available.

The aim of the scheme therefore is to facilitate the commercial funding of priority, higher risk commercial projects with high profit potential. Any project receiving an IIL must be projected as profitable over its operational life as this scheme will not assure profitability but simply balance early losses with later profits.

The scheme, although administered with flexibility, will follow these guidelines:

- the term of the loan will be the first four years of commercial production;

- the amount of the loan facility will not exceed 15 per cent of total capital funds required to implement the project.

3. Feasibility Studies Contribution Scheme

The government appreciates that for many potential investors, there is very little information available on the projects they wish to promote. In recognition of the high costs and associated high risk in obtaining such information in advance of a project go-ahead decision, the government has initiated the Feasibility Studies Contribution Scheme.

The government will finance 50 per cent or K100,000, whichever is the lesser, of the cost of the feasibility study, in return for an undertaking that should the initial firm decide not to proceed, the government has access to all information gained from the study so as to attract another investor.

If the investor proceeds with the project, or if a later investor goes ahead after 'substantially' using the original study, the government may acquire equity in the company equal to its financial contribution or the amount may be regarded as a loan to be repaid at commercial rates after project commencement.

To be eligible for the scheme a project/industry must satisfy the following criteria:

(a) it has either 'priority' or 'open' status, in the National Investment Priorities Schedule; and

(b) it is one where the government desires feasibility information.

A list of qualifying industries follows. However, an investor who is considering the potential for manufacturing a product not appearing on this list is invited to apply to the Executive Director of NIDA.

Activated carbon
Agricultural hand tools
Bandages, plasters and sanitary napkins
Basic transport vehicle and component assembly
Bolts and nuts (including screws and rivets)
Cocoa processing
Confectionary
Domestic electrical appliances
Dry cell batteries
Electric light fittings
Electric wire and cable manufacture
Essential oils/oleoresins (growing of crops and processing)
Fishing net and line manufactures
Fuel alcohol from biomass (such as cassava, timber, sago, sugarcane and nipa palm)
Glassware and sheet glass
Instant coffee
Injection moulded plastics
Pharmaceutical goods
Preserving and canning of fruits and vegetables
Rubber goods
Secondary batteries (accumulators)
Ship repair and boat building
Solar heaters
Spices growing and processing
Stationery goods
Towels, terry towelling and other textiles
Tradesman's tools (screwdrivers, hammers, saws, pincers, etc.)

4. No import duties

Other than a general import levy of 2½ per cent on all goods, there are no duties on imported capital goods. Investors can also apply for exemption from the generally low rates of duty in raw materials if the latter are significant to project operations.

5. Government equity participation

As a matter of policy, the government does not usually insist on taking an equity position in new projects. It believes that adequate financial returns to the nation from a project can be secured by an appropriate fiscal regime. If desired by the promoting investor, however, the government will consider taking an equity position to reflect its commitment to that project.

6. Protectionist policies

Papua New Guinea is willing to protect certain new industries by banning the import of a good to be produced in Papua New Guinea for a limited period. This is done only if such protection is essential for market penetration and the recipient agrees to submit to price control on the basis of import parity pricing. Tariff protection can also be granted, but

this incentive is used sparingly as the government prefers more visible means of protection where this is judged to be necessary.

Statistical appendix

Table 1A Papua New Guinea, various constant prices (1977) gross domestic product (GDP) series: all based on 'revised official series' (kina million)

Year	(1) Total GDP[a]		(2) Market GDP		Market direct	(3) GDP BCL	Excluding contribution	(4) Excluding direct BCL and government contribution[c]			(5) (4) excluding BCL/ Ok Tedi 1981-83[d]		(6) Excluding BCL and total government expenditure		(7) Purchasing power of real total market GDP (adjusted for terms of trade)	
	K million	% change over year		% change	(A)[b]	(B)	% change	(A)	(B)	% change		% change		% change		% change
FY1972/73	..		1,135.5		1,005.8			795.0[f]					571.7		1,051.8	
FY1973/74	..		1,159.1	2.1	954.9		-5.1	763.9[f]		-3.9			534.6	-6.5	1,253.1	
FY1974/75	..		1,143.0	-1.4	1,051.3		10.1	873.7[f]		14.4	FY1972/73-1980 as series (4)		700.2	31.0	969.3	-22.7
FY1975/76	..		1,149.2	0.5	1,057.8	1,036.9	0.6	857.5	836.6	-1.9			659.4	-5.8	948.3	-2.2
FY1976/77	..		1,135.5	-1.2	1,029.2	1,032.6	-2.7	834.6	838.0	-2.7			664.9	0.8	1,095.2	15.5
1977	1,316.4		1,129.1	-1.7[g]	1,007.0	1,014.3	-4.1[g]		820.7	-4.3[g]			659.9	-2.0[g]	1,129.1	19.1[g]
1978	1,409.7		1,221.4	8.2		1,090.0	7.5		887.8	8.2			724.7	12.2	1,148.3	
1979	1,435.2		1,249.3	2.3		1,148.0	5.3		954.6	7.5			759.5	4.8	1,270.8	10.7
1980	1,402.3	..	1,223.2	-2.1	..	1,170.3	1.9	..	976.5	2.2	as series (4)	..	..	..	1,156.1	-9.0
1981	1,422.8	..	1,240.4	1.4	..	1,189.8	1.7	..	984.0	0.9	974.3	-0.1	..	..	1,042.4	-9.8
1982	1,420.2	..	1,234.5	-0.5	..	1,160.9	-2.4	..	960.9	-2.3	898.2	-7.8	..	..	1,009.9	-3.1
1983	1,431.7	..	1,242.4	0.7	..	1,155.4	-0.5	..	967.9	0.7	895.5	-0.3	..	..	1,065.3	5.4
1984(P)	1,462.8	..	1,245.4	0.2	..	1,187.6	2.8	..	1,012.5	4.6	986.9	10.2	..	..	1,083.3	1.7
Approx. trend growth rate (g) 1972/73-1984				1.0			1.9			2.4		1.9				-0.1

[a] Consistent estimates of non-market GDP at 1977 prices and available prior to 1977.

[b] Method in column 3A involves calculating implicit price index (IPI) for market GDP without Bougainville Copper Ltd (BCL) (by deleting effects of BCL exports), and applying this to current price estimate of market GDP less BCL arrived at from cost structure approach. Method in column 3B directly deflates BCL output (by IPI of BCL output) and BCL cost of production (by consumer price index (CPI) for Kieta, Arawa, Panguna). Local CPI not available prior to 1977, hence the need to switch methods. Annual percentage changes switch from column A to column B in 1977.

[c] Series (4) excludes the direct value added contributions of Bougainville Copper Ltd and government; for government this includes only final consumption less intermediate consumption (= compensation of employees).

[d] Additional deduction for estimated GDP contribution of foreign-financed capital expenditure of major mines (net of import component).

[e] Series compiled by P. Baxter (see Garnaut and Baxter 1983) excluding all government final consumption, and also effects of government capital expenditure and imports, consistent only up to 1979 with revised official series.

[f] Government value added roughly estimated for these years from data on government final consumption and wage share of government current spending (Colclough and Dabiel 1983: Table 3.1), plus 5 per cent margin for consistency with later years.

[g] Percentage change FY1975/76-1977.

[h] Calculated by least squares method (i.e., weight given to all years), with FY1976/77 excluded, 1977 included.

Sources: Table A3 and data supplied by National Statistical Office.

Table A2 Papua New Guinea — expenditure on Gross Domestic Product at current purchasers' values, 'revised official series' FY1972/73-1984 (kina million)

Year	Government final consumption expenditure	Private final consumption expenditure		Increase in stocks[a]	Gross fixed capital formation		Gross domestic expenditure		Exports of goods and services	Less Imports of goods and services	Statistical discrepancy[a]	Gross domestic product		
		Market	Non-market		Market	Non-market	Market	Non-market				Market component	Non-market	Total
FY1972/73	228.0	276.5	161.9	13.1	126.6	3.2	644.2	165.1	290.4	308.2	..	626.4	165.2	791.6
FY1973/74	270.1	299.1	158.4	-23.0	130.4	1.2	676.6	159.6	530.5	328.7	..	878.4	159.6	1,038.0
FY1974/75	305.4	366.5	168.6	15.8	186.5	1.4	874.2	170.0	428.1	485.8	..	816.5	170.0	986.5
FY1975/76	347.0	432.3	175.7	2.2	161.4	2.0	943.1	177.7	400.4	470.9	..	872.4	177.7	1,050.1
FY1976/77	332.4	479.2	182.5	18.9	225.1	2.2	1,055.6	184.7	542.9	528.8	..	1,069.7	184.8	1,254.5
1977	337.7	529.3	184.8	42.1	236.8	2.5	1,145.9	187.3	584.0	600.8	..	1,129.1	187.3	1,316.4
1978	353.3	578.9	209.6	27.8	265.9	2.6	1,225.9	212.2	579.1	627.5	23.4	1,201.0	212.3	1,413.3
1979	371.4	666.9	223.7	57.1	323.5	2.7	1,418.9	226.4	742.5	744.3	-10.9	1,406.1	226.4	1,632.5
1980	411.2	791.9	259.4	36.4	391.3	2.9	1,630.8	262.3	737.6	910.8	-11.8	1,445.8	262.3	1,708.1
1981	454.4	821.2	282.9	7.4	447.5	3.2	1,730.5	286.2	642.9	987.6	9.2	1,395.0	286.2	1,681.2
1982	468.1	820.8	297.1	-14.2	573.3	3.4	1,847.9	300.5	644.3	1,058.2	14.5	1,448.5	300.5	1,749.1
1983	471.3	926.0	319.8	-6.2	632.3	3.6	2,023.4	323.4	771.2	1,135.4	-13.0	1,646.3	323.4	1,969.7
1984(P)	508.0	1,059.0	328.4	65.0	485.1	3.8	2,117.1	332.2	908.0	1,202.0	12.5	1,840.6	332.2	2,172.7

General note: For 1978-84, official figures provided by the National Statistical Office are used; earlier figures have been adjusted for consistency with the later series in accordance with the recommendations of Mr Paul Baxter (Garnaut and Baxter, 1983; unpublished papers supplied by Mr Baxter and National Statistical Office). These adjustments are not necessarily endorsed by the Papua New Guinea National Statistical Office.

Sources: See general note; 1978, National Accounts Statistics, Bulletin 17, Consolidated Accounts for the Nation, National Statistical Office, 23 November 1983; 1979, Bulletin 20, National Statistical Office, 16 November 1984; 1980-84, Bulletin 22, National Statistical Office, 5 November 1985.

Table A3 Papua New Guinea — expenditure on Gross Domestic Product at constant 1977 purchasers' values, 'revised official series' FY1972/73-1984 (kina million)

Year	Government final consumption expenditure	Private final consumption expenditure		Increase in stocks[a]	Gross fixed capital formation		Gross domestic expenditure		Exports of goods and services	less Imports on goods and services	Statistical discrepancy[a]	Gross domestic product		
		Market	Non-market		Market	Non-market	Market	Non-market				Market component	Non-market	Total
FY1972/73	401.4	441.7	..	21.3	215.7	..	1,080.1	..	546.9	491.5	..	1,135.5	..	..
FY1973/74	394.3	423.7	..	-60.5	204.4	..	961.9	..	671.5	474.3	..	1,159.1	..	..
FY1974/75	386.6	400.5	..	19.8	235.2	..	1,042.1	..	713.5	612.6	..	1,143.0	..	..
FY1975/76	385.9	462.8	..	2.4	171.7	..	1,022.8	..	623.7	497.3	..	1,149.2	..	..
FY1976/77	337.2	492.0	..	19.2	232.3	..	1,080.7	..	596.6	541.8	..	1,135.5	..	..
1977	337.7	529.3	184.8	42.1	236.8	2.5	1,145.9	187.3	584.0	600.8	-	1,129.1	187.3	1,316.4
1978	343.4	542.7	185.8	27.8	257.9	2.5	1,171.8	188.3	639.1	613.3	23.8	1,221.4	188.3	1,409.7
1979	349.6	580.9	183.6	52.6	298.5	2.3	1,281.6	185.9	637.4	660.6	-9.1	1,249.3	186.0	1,435.2
1980	337.8	617.3	176.8	29.2	337.0	2.3	1,321.3	179.1	635.3	723.5	-9.9	1,223.2	179.1	1,402.3
1981	324.8	597.0	180.1	5.2	345.5	2.3	1,272.5	182.4	669.6	724.7	23.0	1,240.4	182.4	1,422.8
1982	313.7	570.0	183.4	-10.5	398.4	2.3	1,271.6	185.7	670.5	732.1	-24.5	1,234.5	185.7	1,420.2
1983	300.4	605.6	187.0	-4.0	412.7	2.3	1,314.7	189.3	682.4	744.0	-10.7	1,242.4	189.3	1,431.7
1984(P)	304.8	644.5	185.0	39.2	294.7	2.4	1,244.0	187.4	716.1	733.4	-20.5	1,245.4	217.4	1,462.8

Notes and sources: As for Table A2, except 1980-84 revised from data supplied by National Statistical Office, June 1985.

Table A4 Implicit price indices of expenditure components of market gross domestic product (1977 = 100)

Year	Government final consumption expenditure	Private final consumption expenditure (market)	Gross fixed capital formation (market)	Gross domestic expenditure (market)	Exports of goods and services	Imports of goods and services	Gross domestic product (market)
FY1972/73	56.8	62.6	58.7	59.6	53.1	62.7	55.2
FY1973/74	68.5	70.6	63.8	70.3	79.0	69.3	75.8
FY1974/75	79.0	91.5	79.3	83.9	60.0	79.3	71.4
FY1975/76	89.9	93.4	94.0	92.2	64.2	94.7	75.9
FY1976/77	98.6	97.4	96.9	97.7	91.0	97.6	94.2
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	102.9	106.7	103.1	104.6	90.6	102.3	98.3
1979	106.2	114.8	108.4	110.7	116.5	112.7	112.6
1980	121.7	128.3	116.1	123.4	116.1	125.9	118.2
1981	139.9	137.6	129.5	136.0	96.0	136.3	112.5
1982	149.2	144.0	143.9	145.3	96.1	144.5	117.3
1983	156.9	152.9	153.2	153.9	113.0	152.6	132.5
1984	166.8	164.3	164.6	170.2	126.8	163.9	147.8

Source: Calculated directly from Tables A2 and A3: current price estimates divided by constant price estimates, expressed as percentages.

Table A5 Calculation of terms of trade effect

Year	Current price exports (k million)	Terms of trade factor $\left(\frac{1}{mp} - \frac{1}{xp}\right)$	Terms of trade effect (k million)	Market GFP after TOT adjustment (1977 prices, k million)
FY1972/73	290.4	-0.2883	-83.7	1,051.8
FY1973/74	530.5	0.1772	+94.0	1,253.1
FY1974/75	428.1	-0.4056	-173.6	969.3
FY1975/76	400.4	-0.5017	-200.9	948.3
FY1976/77	542.9	-0.0743	-40.3	1,095.2
1977	584.0	-	-	1,129.1
1978	579.1	-0.1262	-73.1	1,148.3
1979	742.5	+0.0289	+21.5	1,270.8
1980	737.6	-0.0670	-49.4	1,156.1
1981	642.9	-0.3080	-198.0	1,042.4
1982	644.3	-0.3485	-224.6	1,009.9
1983	771.2	-0.2296	-177.1	1,065.3
1984	908.0	-0.1785	-162.1	1,083.3

Note: mp = implicit import price index; xp = implicit export price index.

Source: Calculated from Tables A2 and A4.

Table A6 Growth rates of capital formation and exports in 1977 constant prices (annual % change)

Year	Gross fixed capital formation (market component)	Exports of goods and services
FY1973/74	-5.2	22.8
FY1974/75	15.1	6.3
FY1975/76	-27.0	-12.6
FY1976/77	35.2	-4.3
1977	37.9[a]	-6.4[a]
1978	8.9	9.4
1979	15.7	-0.3
1980	12.9	-0.3
1981	2.5	5.4
1982	15.3	+0.1
1983	3.6	1.8
1984	-28.6	4.9
Trend annual growth rate 1972/73-1977	6.6	1.2

[a]FY1975/76-1977.

Source: Calculated from Table A3.

Table A7 Cost structure of gross domestic product and sources of income, current prices, 'revised official series' (kina million)

Year	Compensation of employees			Operating surplus			Consumption of fixed capital	Indirect taxes	less subsidies	GDP	Net factor income from r.o.w.	Gross national income	Net national income	Net current transfers from r.o.w.	National disposable income
	Total	Free and PP labour[a]	Other	Total	Market	Non-market									
FY1972/73	320.2	37.0	283.2	381.0	215.8	165.2	57.0	36.2	2.8	791.6	-37.2	754.4	697.4	121.3	818.7
FY1973/74	403.6	30.0	373.6	528.0	368.4	159.6	66.8	42.4	2.8	1,038.0	-78.5	959.5	892.7	129.3	1,022.0
FY1974/75	449.6	20.9	428.7	415.6	245.6	170.0	70.2	53.6	2.5	986.5	-71.7	914.8	844.6	145.5	990.1
FY1975/76	487.9	22.8	465.1	427.0	249.3	177.7	77.7	61.0	3.5	1,050.1	-38.9	1,011.2	933.5	164.0	1,097.5
FY1976/77	523.1	21.2	501.9	573.3	388.5	184.8	87.2	75.3	4.4	1,254.5	-38.0	1,216.5	1,129.3	153.5	1,282.8
1977	522.9	19.4	503.5	624.7	437.4	187.3	89.3	84.0	4.5	1,316.4	-26.7	1,289.7	1,200.4	142.0	1,342.4
1978	552.0	14.4	537.5	674.6	462.4	212.3	103.6	87.6	4.7	1,413.3	-19.4	1,393.9	1,290.4	137.4	1,427.7
1979	594.7	9.8	584.9	832.2	605.8	226.4	107.3	102.2	3.9	1,632.5	-39.6	1,592.9	1,485.6	124.2	1,609.8
1980	676.1	6.7	669.4	797.1	534.8	262.3	124.9	114.6	4.6	1,708.1	-58.7	1,649.4	1,524.6	130.7	1,655.3
1981	747.7	5.5	742.2	681.4	395.2	286.2	137.6	119.2	4.6	1,681.2	-60.4	1,620.8	1,483.1	162.3	1,645.4
1982	763.4	5.0	758.4	701.2	400.7	300.5	150.0	138.5	4.1	1,749.1	-72.5	1,676.6	1,526.6	180.1	1,706.7
1983	792.9	-	792.9	866.4	542.9	323.4	162.6	153.4	5.5	1,969.7	-102.6	1,867.1	1,704.6	202.7	1,907.3
1984(P)	872.3	-	872.3	914.8	582.7	332.2	208.4	181.8	4.6	2,172.7	-91.0	2,081.7	1,873.3	216.9	2,090.2

[a] r.o.w. = patially-paid labour.

Sources: Gross domestic product cost structure, as for Table A2; factor incomes and current transfers , 1978-79, Bulletin 17, National Statistical Office, 23 November 1983; 1980-84, Bulletin 22, National Statistical Office, 5 November 1985; 1977, Bulletin 11, National Statistical Office; FY1972/73—FY1976/77, World Bank (1982), Table 2.7 (from National Statistical Office).

Table A8 Disposal of income (calculation of saving), current prices (kina million)

Year	National disposable income	Govt final consumption			Private final consumption			Saving			Plus (GDP minus NDY)[b]	Minus statistical discrepancy[c]	Gross domestic saving[d]
		Total	Imputed free & pp[a]	Other	Total	Market	Non-market	Total	Market	Non-market			
FY1972/73	818.7	228.0	..	..	438.4	276.5	161.9	152.3	149.1	3.2	-27.1		125.2
FY1973/74	1,022.0	270.1	..	..	457.5	299.1	158.4	294.4	293.2	1.2	+16.0		310.4
FY1974/75	990.1	305.4	18.8	286.6	535.1	366.5	168.6	149.6	148.2	1.4	-3.6		146.0
FY1975/76	1,097.5	347.0	20.5	326.5	608.0	432.3	175.7	142.5	140.5	2.0	-47.4		95.1
FY1976/77	1,282.8	332.4	17.5	314.9	661.7	479.2	182.5	288.7	286.5	2.2	-28.3		260.4
1977	1,342.4	337.7	16.0	321.7	714.1	529.3	184.8	290.6	288.1	2.5	-26.0		264.6
1978	1,427.7	353.3	11.9	341.5	788.6	578.9	209.6	285.7	283.1	2.6	-14.4	23.4	247.9
1979	1,609.8	371.4	7.8	363.6	890.5	666.9	223.7	347.9	345.2	2.7	+22.7	-10.9	381.5
1980	1,655.3	411.2	5.3	405.9	1,051.3	791.9	259.4	192.8	189.9	2.9	+52.8	-11.8	257.4
1981	1,645.4	454.4	4.5	449.9	1,104.2	821.2	282.9	86.8	83.8	3.2	+35.8	9.2	113.4
1982	1,706.7	468.1	4.0	464.1	1,117.9	820.8	297.1	120.8	117.4	3.4	+42.4	-14.5	177.7
1983	1,907.3	471.3	-	471.3	1,245.9	926.0	319.8	190.2	186.6	3.6	+62.4	-13.0	265.6
1984	2,090.2	508.0	-	508.0	1,387.4	1,059.0	328.4	194.9	191.1	3.8	+82.5	17.5	259.9

[a] Partially-paid labour.

[b] Difference between gross domestic product (GDP) and national disposable income (NDY) equals consumption of fixed capital minus net current transfers from r.o.w. minus net factor income from r.o.w. subject to rounding errors (<0.1 million).

[c] From 1977 onwards, difference between expenditure and income computations of GDP.

[d] Equivalent to definition in Table A9, subject to rounding errors (<0.1 million).

Sources: Tables A2, A7.

Table A9 Investment and savings FY1972/73-1984, current purchasers' values (kina million)

	FY1972/73	FY1973/74	FY1974/75	FY1975/76	FY1976/77	1977	1978	1979	1980	1981	1982	1983	1984
Gross fixed capital formation	129.8	131.6	187.9	163.4	227.3	239.3	268.5	326.2	394.2	450.7	576.7	635.9	488.9
Changes in stocks	13.1	-23.0	15.8	2.2	18.9	42.1	27.8	57.1	36.4	7.4	-14.2	-6.2	65.0
Gross domestic investment (GDI)	142.9	108.6	203.7	165.6	246.2	281.4	296.3	383.3	430.6	458.1	562.5	629.7	423.9
Imports, goods and services (M)	308.2	328.7	485.8	470.9	528.8	600.8	627.5	744.3	910.8	987.6	1,058.2	1,135.4	1,202.0
Exports, goods and services (X)	290.4	530.5	428.1	400.4	542.9	584.0	579.1	742.5	737.6	642.9	644.3	771.2	908.0
Resource gap (RG = M-X)	17.8	-201.8	57.7	70.5	-14.1	16.8	48.4	1.8	173.2	344.7	413.9	394.6	294.0
Gross domestic savings (GDS = GDI-RG)	125.1	310.4	146.0	95.1	260.3	264.6	247.9	381.5	257.4	113.4	148.6	235.1	129.9
Net factor income r.o.w.	-37.2	-78.5	-71.7	-38.9	-38.0	-26.7	-19.4	-30.6	-58.7	-60.4	-72.5	-102.6	-91.0
Net current transfers from r.o.w.	121.3	129.3	145.5	164.0	153.5	142.0	137.4	124.2	130.7	162.3	180.1	202.7	216.9
Gross national savings (GNS)	199.2	361.2	219.8	220.2	375.8	379.9	365.9	466.1	329.1	215.3	256.2	335.2	255.8
Implied financing gap/surplus (GNS-GDI)	56.3	252.6	16.1	54.6	129.6	98.5	69.6	82.8	-101.2	-242.8	-306.3	-294.5	-168.1
Memo items													
Gross domestic product	791.6	1,038.0	986.5	1,050.1	1,254.5	1,316.4	1,413.3	1,632.5	1,708.1	1,681.2	1,794.1	1,969.7	2,172.7
as % of GDP — GDI	18.1	10.5	20.6	15.8	19.6	21.4	21.0	23.5	25.2	27.2	31.4	32.0	19.5
GDS	14.5	29.9	14.8	9.1	20.7	20.1	17.5	23.4	15.1	6.7	8.3	11.9	6.0
GNS	25.2	34.8	22.3	21.0	30.0	28.9	25.9	28.6	19.3	12.8	14.3	17.0	11.8

Note: This presentation is in the form commonly used by the World Bank (e.g., World Bank, 1982, Table 2.7); for Papua New Guinea it is subject to wide margins of error because the expenditure and income approaches to the national accounts are blended, and because, prior to 1977, stock changes incorporate the statistical discrepancy between income and expenditure approaches. While the calculations are compiled on a different basis, it can be noted that the implied financing gap moves roughly in step with the balance of payments on current account shown in Table A10.

Sources: Factor incomes from r.o.w. and current transfers 1980-84, Bulletin 22, 5 November; 1978-79, Bulletin 17 , 23 November 1983; 1977, Bulletin 11, 11 October 1981; FY1972-73-FY1976-77, World Bank (1982), Table 2.7 (from National Statistical Office); GDP data from Table A2.

Table A10 Papua New Guinea: balance of payments (kina million)[a]

	1976	1977	1978	1979	1980	1981	1982	1983
Current account								
Merchandise exports	452	552	533	720	660	566	568	691
Merchandise imports	-351	-448	-478	-558	-684	-738	-752	-830
Trade balance	100	104	55	163	-24	-172	-184	-139
Invisible receipts	71	53	52	65	70	89	114	108
Invisible payments[d]	-199	-210	-217	-285	-342	-372	-387	-430
Net invisibles	-128	-157	-165	-220	-272	-283	-273	-322
Net private transfers	-51	-45	-62	-68	-80	-85	-91	-81
Net official transfers	114	181	180	180	178	189	193	215
Balance on current account	35	83	8	55	-197	-352	-355	-327
Capital account								
Net official capital inflow	10	31	-5	27	44	78	75	125
Net private inflow[d]	8	12	-20	11	30	189	282	259
Non-official monetary sector[b]	-5	-37	37	-11	-5	17	-1	-
Balance on capital account	12	6	22	27	69	284	356	389
Net errors and omissions	-13	21	-31	-4	81	29	-19	21
Overall balance	35	110	-2	78	-47	-39	-22	83
Govt commercial borrowings (GCB)[c]				25	49	68	74	70
Overall balance excluding GCB				53	-96	-107	-96	13
International reserves								
Level at end year				373	294	290	272	397
Import cover (no. of months)				6.9	4.7	4.7	4.0	5.4

[a] Since monetary independence in December 1975; balance of payments data on exports and imports are not compiled on the same basis as national accounts data; totals subject to rounding errors.

[b] Transactions reported by commercial banks.

[c] For general budgetary purposes (i.e., excluding borrowings for specific projects or public enterprises).

[d] Retained earnings treated as invisible outflow with identical private capital inflow.

Source: Bank of Papua New Guinea, May 1984.

Table A11 Private capital flows in the balance of payments, 1976-1983 (kina million)

	1976	1977	1978	1979	1980	1981	1982	1983
Borrowings								
Bougainville Copper Ltd — net	-2.3	7.3	-41.6	-14.6	-9.4	70.9	9.3	-78.6
Ok Tedi — net						16.9	179.1	213.3
North Fly Highway Dev. Co. — net[a]							12.0	5.9
Other private:[b] Borrowings	9.7	2.0	3.4	10.6	6.5	53.0	45.7	34.6
Repayments	-17.3	-11.0	-5.9	-14.0	-14.0	-7.1	-25.0	31.3
Net	-7.6	-9.1	-2.6	-3.4	-7.4	45.8	19.8	3.3
Equity								
Ok Tedi						9.1	25.2	64.5
Investment in PNG by overseas residents	4.5	3.2	5.4	7.7	15.0	8.4	18.0	
Withdrawal of investment in PNG by overseas residents	-3.0	-9.8	-6.4	-14.2	-8.5	-5.5	-9.4	
Net	1.5	-6.5	-0.9	-6.6	6.5	2.9	8.6	26.5
Withdrawal of investment overseas by PNG residents	1.6	0.6	0.3	0.2	1.1	2.6	2.3	-5.8
Investment overseas by PNG residents	-2.1	-2.2	-3.9	-2.6	-4.8	-3.0	-3.6	20.8[c]
Net	-0.4	-1.5	-3.6	-2.3	-3.8	-0.4	-1.4	
Retained earnings (reinvested)[d]	16.9	22.1	28.5	38.0	44.0	44.0	30.0	30.0
Total private capital flows (net)	8.0	12.1	-20.2	11.1	29.9	189.2	282.6	259.2

[a] This company is a government-owned vehicle for provision of a road as part of the Ok Tedi mining project.

[b] Includes direct borrowings by non-government public enterprises (i.e., transactions not covered by national government budget).

[c] Separation of equity transactions not available for 1983.

[d] Re-investment of retained earnings understood to be based on Bank of Papua New Guinea research up to 1979, but estimated thereafter.

Source: Data supplied by Bank of Papua New Guinea, May 1984.

Table A12 Selected invisible transactions and transfers in the balance of payments (kina million)

	1976	1977	1978	1979	1980	1981	1982	1983
Invisibles								
Investment income paid overseas								
BCL:[a] interest paid	18.4	16.1	17.2	38.5	73.7	7.4	15.1	9.4
dividends						37.1	8.0	19.9
Ok Tedi: interest						0.3	12.4	25.8
Other private payments overseas[b]: dividends	9.7	4.9	8.2	9.0	13.6	18.7	23.4	18.9
interest		4.9	6.7	5.7				
Retained earnings re-invested[c]	16.9	22.1	28.5	38.0	44.0	44.0	30.0	30.0
Royalties, copyright, patent fees	0.3	0.2	0.2	0.1	0.1	0.4	0.1	0.4
Transfers								
Remittances of savings of temporary residents	43.3	37.0	48.7	52.4	60.5	65.9	75.6	71.5

[a] Mostly dividends prior to 1981.

[b] No separation available after 1979, but increase in total mainly due to higher interest rates.

[c] Treated as an outflow in the invisibles account and an inflow on capital account.

Source: Bank of Papua New Guinea, May 1984.

Table A13 Net inflows of foreign investment (kina million)

	Direct investment		Portfolio investment and loans	Total
	Direct investment	Retained earnings		
(A)				
FY1970/71	38.9	8.1	145.6	192.6
FY1971/72	63.3	0.7	105.8	169.8
FY1972/73	6.0	50.6	-27.4	29.3
FY1973/74	11.5	85.8	-23.0	74.3
FY1974/75	45.0	-10.2	-7.8	27.1
FY1975/76	23.7	14.6	-13.6	24.8
FY1976/77	-15.0	19.1	18.8	22.8
(B)				
1976	1.5	16.9	-9.9	8.5
1977	-6.5	22.1	-2.6	13.0
1978	-0.9	28.5	-44.2	-16.6
1979	-6.6	38.0	-18.0	13.4
1980	6.5	44.0	-16.8	33.7
1981	12.0	44.0	133.6	189.6
1982	33.8	30.0	220.2	284.0
1983	84.5	30.0	143.9	258.4

Sources: Series A is drawn from Papua New Guinea National Statistical Office 1978, Table 1; it covers investment from overseas in 'private enterprises' in Papua New Guinea.

Series B is drawn from Bank of Papua New Guinea balance of payments data (as given in Table A11); no portfolio investment is included with loans, and non-budgetary loans to government-owned companies/public enterprises are included.

Table A14 Inflow of overseas investment,[a] by industry FY1970/71-FY1976/77 (kina million)

Industry	FY1970/71	FY1971/72	FY1972/73	FY1973/74	FY1974/75	FY1975/76	FY1976/77
Agriculture[b]	5.3	2.9	3.7	0.3	3.5	2.5	7.8
Mining	161.4	150.9	30.0	68.5	-10.3	3.4	23.8
Manufacturing	3.1	4.2	10.1	5.9	4.1	1.4	1.8
Construction	2.6	4.1	-0.1	0.3	-0.9	-1.8	-3.9
Commerce[c]	12.1	9.3	3.5	-2.4	13.8	21.4	-9.6
Transport	4.0	1.1	-3.4	-3.2	3.7	-5.0	1.3
Finance	4.3	-2.7	-14.6	4.9	13.2	2.8	1.7
Total	192.6	169.8	29.3	74.3	27.1	24.8	22.8

[a]Total net flow of equity and loans; see Table A11 for nearest comparison for later years.

[b]Includes forestry and fishing; disinvestment in agriculture in FY1973/74 and FY1975/76 is offset in the other elements.

[c]Wholesale and retail trade, restaurants and hotels.

Source: Papua New Guinea National Statistical Office, 1978, Table 3.

Table A15 Investment income payable overseas by Papua New Guinea enterprises,[a] FY1970/71-FY1976/77
(kina million)

Industry	FY1970/71	FY1971/72	FY1972/73	FY1973/74	FY1974/75	FY1975/76	FY1976/77
Agriculture	4.6	1.6	0.3	7.0	4.3	2.6	9.4
Mining	0.2	16.7	74.9	151.9	51.4	39.0	31.7
Manufacturing	3.1	3.2	3.8	2.7	3.8	1.5	3.3
Construction	2.7	3.4	0.5	0.3	0.2	0.2	0.1
Commerce	6.9	7.5	6.0	5.5	7.4	9.0	9.5
Transport	2.2	1.7	-	0.5	0.3	0.2	1.2
Finance	2.5	2.9	2.8	0.2	-1.3	2.2	3.9
Total[a]	22.2	37.0	88.2	168.2	66.1	54.7	59.0
Total net of retentions	14.1	36.3	37.6	82.4	76.3	40.1	39.9

[a]Includes all net interest and dividends after tax, *and* undistributed profits of subsidiaries or unremitted profits of branches. In comparing with later figures in Table A12, therefore, allowance must be made for the inclusion of retentions in invisible payments (equal to the retained earnings inflow on capital account).

Source: Papua New Guinea National Statistical Office 1978, Table 6 (gross flows) and Table 1 (retentions)

Table A16 Direct foreign investment inflows and outflows by source country (balance of payments data), 1976-83
(kina million)

Year	Total[a]		Australia		USA		UK		Japan		Hongkong		New Zealand		West Germany		Other[b]	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
1976	4.5	3.0	2.5	2.7	-	0.3	0.5	-	1.0	-	0.4	-	-	-	-	-	-	-
1977	3.2	9.8	0.7	6.3	0.1	2.0	0.9	-	0.7	-	0.1	1.0	0.3	0.1	0.1	-	0.2	0.1
1978	5.4	6.4	2.3	5.3	0.7	-	1.6	-	0.9	-	-	0.7	-	-	-	0.1	-	0.2
1979	7.7	14.2	2.8	11.2	1.4	1.0	0.3	0.7	0.2	-	2.2	1.2	-	-	0.5	-	0.3	-
1980	15.0	8.5	4.4	5.1	2.9	0.4	3.1	0.3	0.6	-	2.8	2.2	0.1	0.1	0.2	-	0.9	0.4
1981	17.7	5.5	8.0	3.3	5.2	0.9	0.1	0.1	-	-	0.8	0.4	0.1	0.1	2.5	0.6	1.0	0.2
1982	43.2	9.4	16.4	5.2	15.5	1.3	1.7	-	0.9	-	0.3	2.7	-	-	6.5	-	1.8	-
1983	90.0	4.3	29.6	3.5	36.7	0.1	2.3	0.1	0.4	-	-	0.1	0.1	-	18.6	-	2.2	0.5

- means less than K50,000.

[a]Equals flows of investment in/out of Papua New Guinea by overseas residents in Table A11, including Ok Tedi.

Ok Tedi elements are:

	Total	Australia	USA	West Germany
1981	9.1	3.4	3.4	2.3
1982	25.2	9.5	9.5	6.3
1983	64.5	24.2	24.2	16.1

(Country division imputed by P. Daniel on the basis of known shareholdings in the Ok Tedi project.)

[b]Known to include Singapore, South Korea, The Netherlands and Belgium.

General note: The Bank of Papua New Guinea treats mineral and petroleum exploration expenditure as a foreign investment inflow, whereas the Papua New Guinea National Statistical Office treats it as private final consumption expenditure for national accounts purposes, not as capital formation. These flows by source country have not yet been checked against data available from the source countries themselves.

Source: Data supplied by Bank of Papua New Guinea, May 1984.

Table A17 Net inflow of overseas investment (equity and debt) by source country, FY1970/71-FY1976/77 (kina million)

Year	Australia	UK	USA	Japan	Other	Total
FY1970/71	106.4	4.0	34.3	43.8	4.1	192.6
FY1971/72	81.5	65.7	17.5	2.8	2.3	169.8
FY1972/73	-4.4	19.9	5.5	6.6	1.7	29.3
FY1973/74	80.8	-60.9	52.0	2.0	0.5	74.3
FY1974/75	18.0	10.3	-8.1	5.6	1.2	27.1
FY1975/76	29.6	4.3	-12.5	1.8	1.6	24.8
FY1976/77	-5.4	-1.6	6.7	1.9	21.2	22.8

Note: 'Investment by overseas residents in Papua New Guinea comprises net increases in all financial liabilities of Papua New Guinean enterprises to non-residents, *including* shares, debentures, loans, advances, indebtedness on current account between related companies, and in undistributed income (before appropriation, if any, to reserves).' (Papua New Guinea National Statistical Office 1978:2).

Source: Papua New Guinea National Statistical Office, 1978, Table 2.

Table A18 Financial operations of the Paua New Guinea government, FY1972/73-1984 (kina million)

	FY1972/73	FY1973/74[a]	FY1974/75[a]	FY1975/76	FY1976/77	1977 Jul-Dec	1978	1979[bc]	1980	1981	1982	1983	1984(P)
Total revenue and grants	215.1	289.0	317.1	372.6	398.4	193.6	445.4	459.6	522.1	568.2	574.0	631.2	669.4
Domestic revenue	93.3	136.7	179.5	220.2	223.6	105.9	273.5	283.4	346.6	384.2	387.3	418.0	441.8
Tax revenue[d]	74.5	67.1	100.1	133.8	151.5	74.5	205.8	206.2	241.6	263.3	292.7	320.2	347.0
Non-tax revenue[d]	18.8	41.6	44.7	41.5	37.1	14.4	36.5	38.7	48.5	39.5	54.6	76.8	65.1
MRSF[c]	..	28.0	34.7	45.0	35.0	17.0	31.2	38.5	56.5	81.4	40.0	21.0	29.7
Foreign grants	121.8	152.3	137.6	152.4	174.8	87.7	171.9	176.2	175.5	184.0	186.7	213.2	227.6
Total expenditure	250.4	307.5	373.9	415.2	409.4	211.1	461.3	504.4	597.8	658.8	667.1	713.1	771.9
Current expenditure[f]	213.9	277.0	330.5	369.7	355.0	178.8	384.2	421.8	478.2	536.8	539.7	n.a.	n.a.
Current surplus/deficit	1.2	12.0	-13.4	2.9	43.4	14.8	61.2	37.8	43.9	31.4	34.3	n.a.	n.a.
Capital expenditure	36.5	30.5	43.4	45.5	54.4	32.3	77.1	82.6	119.6	122.0	127.4	n.a.	n.a.
Overall deficit	-35.3	18.5	56.8	-42.6	-11.0	-17.5	-15.9	-44.8	-75.7	-90.6	-93.1	-81.9	-102.5
Total financing (net)	35.3	-18.5	-56.8	42.6	11.0	17.5	15.9	44.8	75.7	90.6	93.1	81.9	102.5
External sources (net)	35.0	32.1	21.8	13.4	8.9	19.7	2.5	26.9	47.4	83.7	75.7	110.1	91.1
Borrowing (net)	33.7	42.5	34.0	13.0	9.5	21.3	2.5	26.9	45.4	78.2	73.6	107.9	91.1
Australia	3.0	2.2	-2.5	-2.2	-2.3	-1.2	-	-	-6.1	-3.1	-7.7	-2.1	-
International agencies[g]	7.9	9.1	14.4	9.3	10.0	5.7	8.5	13.6	16.5	21.3	19.8	44.6	60.8
Commercial	22.8	31.2	33.1	5.9	1.8	16.8	-6.0	13.3	35.0	60.0	61.5	65.4	30.3
Other[h]	-1.3	-10.4	-12.2	0.4	-0.6	-1.1	-	-	2.0	5.5	2.1	2.2	-
Domestic sources (net)	0.3	-13.6	35.0	29.2	2.1	-2.2	13.4	17.9	28.3	6.9	17.4	-28.2	11.4
Bank of Papua New Guinea	n.a.	n.a.	13.3	-1.0	-1.3	-15.9	11.1	12.9	-6.3	15.1	27.2	-37.8	-5.7
Commercial banks								9.7	38.5	2.8	-10.9	7.5	5.0
Non-bank domestic borrowing	n.a	n.a	21.7	30.2	3.4	13.7	2.3	-4.7	-3.9	-11.0	1.1	2.6	7.8
Other[j]								-	-	-	-	-0.5	4.0
Memo items													
Interest payments				n.a.	17.7		21.0	27.5	26.3	52.1	61.0	68.2	74.4
Commercial investments				-	-		-	-	-	9.6	14.0	20.4	27.8
Goods and services expenditure				374.0	391.7		440.3	467.3	558.8	597.1	592.1	620.4	674.6

Total public debt outstanding (end of period)[k]	313.9	315.0	341.2	350.2	411.8	480.4	544.2	645.7	806.5	n.a.
Foreign	n.a.	n.a.	255.1	253.1	270.3	304.2	389.9	485.4	660.5	n.a.
Domestic	n.a.	n.a.	86.0	97.2	141.5	176.2	154.3	160.3	146.0	n.a.

[a]These years may include errors of double-counting of parts of the Bougainville Copper Ltd contribution to revenue.

[b]From 1979 onwards, some items of classification may differ very slightly from previous years.

[c]Mineral Resources Stabilization Fund, 1979 revenue and, especially, expenditure figures are a puzzle. Four different versions in a range of official and semi-official sources have been found. Figures presented are the most recent ones made available: they conform to the general view that real expenditure grew sharply between 1979 and 1980 but other sources suggest higher expenditure in 1979. The problem may lie in accounting for government transactions with public enterprises in 1979.

[d]Excluding revenues from Boungainville Copper Ltd, paid directly into Mineral Resources Stabilization Fund.

[f]Special elements of Australian expenditure included up to FY1975/76; figures exclude appropriations for loan repayments.

[g]Net concessional borrowing from multilateral and bilateral offical agencies.

[h]Includes National Debt Sinking Fund (NDSF) net budget contribution (foreign asset change only from 1979).

[j]NDSF domestic asset changes.

[k]Bank of Papua New Guinea, not fully consistent with financing operations shown; does not include publicly-guaranteed debt.

Sources: FY1972/73-FY1974/75 World Bank (1982), Table 5.1; FY1975/76-1978 Garnaut and Baxter (1983), Table 7.2 (with corrections); 1979-1984 data supplied by Papua New Guinea Department of Finance, May 1984. 'Debt outstanding' from Garnaut and Baxter (1983), Table 7.2 and from Bank of Papua New Guinea, *Quarterly Economic Bulletin*, March 1984.

Table A19 Mineral Resources Stabilization Fund operations (MRSF) FY1973/74-1984 (kina million)

	FY1973/74	FY1974/75	FY1975/76	FY1976/77	1977 Jul-Dec	1978	1979	1980	1981	1982	1983	1984(P)
MRSF total receipts (all from BCL)	28.0	34.7	62.9	24.6	23.8	21.1	39.4	108.7	71.5	25.7	25.0	64.4
Company income tax	-	9.1	54.1	15.6	20.5	13.5	23.1	73.4	51.7	19.5	13.0	41.8
Dividend withholding tax	9.5	8.6	3.1	3.0	1.1	2.7	6.0	12.7	6.4	2.4	3.8	8.5
Dividend on government share	15.1	13.9	5.0	5.1	2.0	4.6	10.2	21.4	10.7	2.3	5.7	14.1
Investment income	-	-	0.7	0.8	0.2	0.3	0.1	1.2	2.4	2.5	2.5	..
Royalty	3.4	3.1	(2.3)[b]	(2.5)	(0.8)	(2.1)	(2.8)	(4.2)	(3.7)	(3.4)	(4.7)	(5.4)
Flows to central government	28.0	34.7	45.0	35.0	17.0	32.0[a]	38.5	56.5	81.4	40.0	21.0	29.7
MRSF balance, end of period	-	-	17.9	7.5	14.3	3.4	4.3	56.3	46.1	31.8	35.8	70.5

[a]Slight inconsistency with revenue tables, not reconciled.

[b]Paid directly to provincial government from FY1975/76 onwards.

Source: *Mineral Resources Stabilization Fund Annual Reports*, and Department of Finance data.

Table A20 Central government revenue, FY1972/73-1984 (kina million)

	FY1972/73	FY1973/74[a]	FY1974/75[a]	FY1975/76	FY1976/77	1977 July-Dec	1978	1979[b]	1980	1981	1982	1983	1984(P)
Tax revenue	74.5	76.6	117.8	191.0	170.1	96.1	224.4	235.3	327.7	321.4	313.6	337.0	365.8
Taxes on income and profits	38.2	34.2	64.0	130.3	91.8	49.7	136.0	135.3	214.6	201.3	176.4	183.4	186.4
Companies	14.1	8.0	34.5	98.0	61.4	33.5	62.7	63.9	120.9	95.3	61.7	57.3	56.7
Bougainville Copper Ltd	(-)	(-)	(9.1)	(54.1)	(15.6)	(20.5)	(13.5)	(23.1)	(73.4)	(51.7)	(19.5)	(13.0)	(14.6)
Other	(14.1)	(8.0)	(25.4)	(43.9)	(45.8)	(13.0)	(49.2)	(40.8)	(47.5)	(43.6)	(42.2)	(44.3)	(42.1)
Individuals	22.1	15.0	19.9	27.5	26.0	13.9	67.1	61.6	75.9	94.8	108.7	118.6	121.4
Dividend withholding	2.0	11.2	9.6	4.8	4.4	2.3	6.2	9.8	17.8	11.2	6.0	7.5	8.3
Bougainville Copper Ltd	(-)	(9.5)	(8.6)	(3.1)	(3.0)	(1.1)	(2.7)	(6.0)	(12.7)	(6.4)	(1.4)	(3.8)	(4.2)
Other	(2.0)	(1.7)	(1.0)	(1.7)	(1.4)	(1.2)	(3.5)	(3.8)	(5.1)	(4.8)	(4.6)	(3.7)	(4.1)
Excise duties	11.4	17.1	20.3	25.7	32.6	18.5	36.3	41.0	46.1	47.2	49.8	51.5	58.2
Taxes on international trade	22.5	22.9	30.8	31.7	41.8	26.0	47.8	56.3	64.5	68.2	82.1	93.3	111.0
Import duties	22.5	22.9	29.7	29.6	35.3	20.8	41.7	48.0	55.1	63.7	77.6	88.4	99.8
Export taxes	-	-	1.1	2.1	6.5	5.2	6.1	8.3	9.4	4.5	4.5	4.9	11.2
Other taxes	2.4	2.4	2.7	3.3	3.9	1.9	4.3	2.7	2.5	4.7	5.3	8.8	10.2
Non-tax revenue	18.8	60.1	61.7	47.2	43.0	16.6	39.0	49.0	71.1	52.6	59.4	82.5	71.2
Revenue from investments	4.3	33.5	30.6	14.3	15.2	7.5	15.3	17.8	39.7	15.7	13.6	23.6	18.8
Bougainville Copper Ltd	(-)	(15.1)	(13.9)	(5.7)	(5.9)	(2.2)	(4.9)	(10.3)	(22.6)	(13.1)	(4.8)	(5.7)	(6.1)
Other	(4.3)	(18.4)	(16.7)	(8.6)	(9.3)	(5.3)	(10.4)	(7.5)	(17.1)	(2.6)	(8.8)	(17.9)	(12.7)
Other	14.5[c]	26.4[c]	31.1[c]	32.9	27.8	9.1	23.7	31.1	31.4	36.9	45.8	58.9	52.4
Total revenue	93.3	136.7	179.5	238.2	213.1	112.7	263.4	284.3	398.8	374.0	373.0	419.5	437.0
Bougainville Copper Ltd	-	28.0	34.7	62.9	24.6	23.8	21.1	39.4	108.7	71.2	25.7	22.5	24.9
Other	93.3	108.7	144.8	175.3	188.5	88.9	242.3	244.9	290.1	302.8	347.3	397.0	412.1
Internal revenue to budget	93.3	136.7	179.5	220.3	223.5	105.9	273.5	283.4	346.6	384.2	387.3	418.0	441.8
Mineral Resource Stabilization Fund	-	28.0	34.7	45.0	35.0	17.0	31.2	38.5	56.5	81.4	40.0	21.0	29.7
Other	93.3	108.7	144.8	175.3	188.5	88.9	242.3	244.9	290.1	302.8	347.3	397.0	412.1

[a]Possible double counting of some Bougainville Copper Ltd revenue in these years: to be checked.

[b]Minor reclassification of tax items to non-tax revenue (circa K3.0 million).

[c]Including Bougainville Copper Ltd royalties so subsequently paid to provincial government: FY1972/73 not available; FY1973/74 3.4; FY1974/75 3.1.

Sources: FY1972/73 and FY1973/74, World Bank (1982), Table 5.2; FY1974/75-1978 Garnaut and Baxter (1983), Table 7.3; FY1979-84, data supplied by Department of Finance, May 1984.

Table A21 Quantity of major exports

	FY1972/73	FY1973/74	FY1974/75	FY1975/76	FY1976/77	1977	1978	1979	1980	1981	1982	1983
Copper concentrate ('000 dry tonnes)	295.1	717.1	623.7	530.2	566.5	614.8	640.9	586.5	494.4	563.3	608.8	632.1
Gold (alluvial and in concentrate) (kg)[a]	18,900	21,000	19,500	17,100	19,900	22,928	23,357	20,737	14,532	17,641	19,071	19,053
Copper (contained in concentrate) ('000 tonnes)[a]	82.7	183.5	179.6	155.1	167.7	182.0	193.1	172.0	142.2	164.0	173.2	181.1
Cocoa (tonnes)	22,071	28,742	35,498	30,431	28,008	29,392	27,129	28,084	28,792	27,835	28,689	26,341
Coffee (tonnes)	31,158	32,713	36,769	37,182	49,797	36,965	45,801	49,586	51,007	47,057	41,105	52,159
Copra (tonnes)	79,785	73,568	95,455	92,764	82,542	88,932	97,056	90,880	90,820	99,389	74,357	78,711
Copra oil and pellets (tonnes)	44,702	40,367	41,786	43,992	42,207	27,665	27,608	30,822	34,142	34,772	37,593	36,178
Tea (tonnes)	2,792	3,965	4,489	4,871	6,058	6,192	6,979	6,978	7,915	6,956	6,475	7,233
Palm oil (tonnes)	8,066	8,734	18,438	27,087	26,883	25,517	33,492	34,537	33,347	44,031	76,715	77,939
Rubber (tonnes)	5,616	6,127	5,474	4,956	4,453	4,152	4,135	4,026	4,027	4,537	2,337	2,733
Forest products												
Logs ('000 m^3)	468	704	427	418	539	412	421	476	618	749	1,063	1,003
Lumber ('000 m^3)						59	32	64	44	25	21	16
Woodchip (tonnes)						233	230	119	133	102	103	117
Fish												
Tuna (tonnes)	12,720	38,615	31,607	19,925	31,846	23,760	45,452	27,275	33,058	29,788	2,725	541
Other (tonnes)						1,222	1,178	1,719	1,368	1,419	1,161	1,177

[a] FY1972/73-FY1976/77 Bougainville Copper Limited exports estimated from grade of concentrate produced in calendar years.

Source: 1977-83, Bank of Papua New Guinea *Quarterly Economic Bulletin*, March 1984; 1977-1978, Bank of Papua New Guinea *Quarterly Economic Bulletin*, December 1981; earlier figures World Bank 1982 (Table 3.2).

Table A22 Value of merchandise exports (kina thousand)

	FY1972/73	FY1973/74	FY1974/75	FY1975/76	FY1976/77	1977	1978	1979	1980	1981	1982	1983
Copper concentrates and alluvial gold	126,578	313,531	240,134	201,424	194,503	186,410	231,869	358,986	322,306	300,591	302,137	373,126
Copper	125,625	311,909	236,660	199,461	192,149	111,028	122,549	183,958	139,290	134,592	122,755	161,040
Silver						4,646	5,544	11,987	10,154	7,053	7,533	11,155
Gold - BCL												
Gold - alluvial	953	1,622	3,474	1,963	2,354	70,736	103,776	163,041	172,862	158,946	171,849	200,931
Cocoa	11,175	23,338	40,067	28,645	55,131	86,349	62,955	60,872	46,493	34,135	31,822	41,376
Coffee	23,395	28,847	33,554	42,226	132,619	143,441	107,225	124,996	118,643	74,218	77,780	94,651
Copra	8,083	23,672	28,841	11,633	19,187	23,219	23,023	38,162	24,494	19,316	12,878	23,983
Copra oil and pellets	5,932	14,773	15,495	8,491	13,451	11,616	12,449	20,599	16,610	12,508	12,110	20,038
Tea	2,048	2,601	3,866	3,978	8,001	9,765	7,833	7,982	8,507	7,131	6,682	10,390
Palm oil	1,148	2,685	6,786	6,617	8,535	8,582	10,483	14,441	11,956	14,223	21,655	23,740
Rubber	1,998	3,563	2,585	2,653	3,128	2,896	2,630	3,497	3,751	3,403	1,406	2,167
Forest products	10,702	20,308	13,576	12,790	26,445	23,695	24,677	36,561	45,746	43,871	61,653	54,654
Fish	4,661	14,176	10,374	9,077	18,666	20,199	25,033	21,878	31,691	27,382	8,264	9,111
Other domestic exports	4,822	11,794	7,282	2,942	9,701	7,244	8,449	9,586	7,751	9,975	9,197	15,066
Total domestic exports	200,542	459,300	402,560	330,476	489,367	523,416	516,626	697,560	637,868	546,553	546,615	668,302
Re-exports	29,072	24,431	20,945	33,274	32,902	31,562	45,860	56,914	53,972	19,334	24,850	19,073
Total all exports	229,614	483,731	423,505	363,750	522,269	554,978	562,486	754,434	691,840	565,887	570,434	687,375

Source: As for Table A20 (FY1976/77 figure corrected).

Table A23 Shares in the value of domestic exports

	FY1972/73	FY1976/77	1978	1983
Copper concentrates etc.	63.1	39.7	44.9	55.8
Gold and silver	..	..	(21.2)	(31.7)
Copper	..	..	(23.7)	(24.1)
Cocoa	5.6	11.3	12.2	6.2
Coffee	11.7	27.1	20.8	14.2
Copra and copra products	7.0	6.7	6.9	6.6
Tea	1.0	1.6	1.5	1.6
Palm oil	0.6	1.7	2.0	3.6
Rubber	1.0	0.6	0.5	0.3
Forest products	5.3	5.4	4.8	8.2
Fish	2.3	3.8	4.8	1.4
Other	2.4	2.0	1.6	2.3
Total domestic exports	100.0	100.0	100.0	100.0

Source: Table A22.

References

Colclough, C. and Daniel, P., 1982. *Wage incomes and wage costs in Papua New Guinea: challenges for adjustment, distribution and growth.* A report prepared for the Government of Papua New Guinea (Commissioned Study No.2, IDS, Sussex).

Coopers and Lybrand, 1983. *Papua New Guinea — Country of Challenge and Opportunity. A Briefing for Overseas Businessmen and Investors*, Port Moresby.

Copes, P., 1981. *Development and Management of Papua New Guinea's Marine Fish Resources*, INA Speech series No.14, Port Moresby.

Corden, W.M., 1981. *Inflation, Exchange Rates and the World Economy: Lectures on International Monetary Economics*, (second edition), Oxford University Press.

Fraser, A.I., 1981. *Issues in Papua New Guinea Forest Policy*, Institute of National Affairs Discussion Paper No.7. Port Moresby.

Garnaut, R., 1981. 'The framework of economic policy-making' in J.A. Ballard (ed.), *Policy Making in a New State: Papua New Guinea 1972-77*, St Lucia, Queensland, University of Queensland Press: 157-211.

——— and Baxter, P. (in consultation with Anne Krueger), 1983. *Exchange Rate and Macro-economic Policy in Independent Papua New Guinea*, Port Moresby, Government Printer, February. Also published as Pacific Research Monograph 11, National Centre for Development Studies, Canberra, Australian National University.

——— and Clunies Ross, A., 1975. 'Uncertainty, risk aversion and the taxing of natural resource projects', *Economic Journal*, 85(338):272-87.

——— and ———, 1983. *Taxation of Mineral Rents*, Oxford, Clarendon Press.

Gregory, C.A., 1982. *Gifts and Commodities*, London, Academic Press.

Jackson, D., 1981. *The Distribution of Incomes in Papua New Guinea*, Waigani, National Planning Office, February.

Jackson, R., 1982. *Ok Tedi: The Pot of Gold*, Port Moresby, Word Publishing.

Johnson, C.J. and Clark, A.L., 1984. 'Mineral Exploration in Developing Countries: The Botswana and Papua New Guinea cases' unpublished paper, Resource Systems Institute, East-West Center, Honolulu.

Knetsch, J. and Trebilcock, M., 1981. *Land Policy and Economic Development in Papua New Guinea*, Port Moresby, Institute of National Affairs.

Meade, J., 1951. *A Theory of International Economic Policy, Vol.1, The Balance of Payments*, Royal Institute for International Affairs, Oxford University Press.

Mikesell, R.F., 1975. *Foreign Investment in Copper Mining: Case Studies of Mines in Peru and Papua New Guinea*, Baltimore and London, Johns Hopkins University Press for Resources for the Future.

Morauta, M., 1979. 'PNG's Economic Policy Framework', *Speech Series No.3*, Institute of National Affairs, Port Moresby.

Overseas Development Group, 1973. *A Report on Development Strategies for Papua New Guinea*, prepared by the Overseas Development Group, University of East Anglia for IBRD/UNDP (The Faber Report), Port Moresby, Office of Programming and Co-ordination, February.

Palmer, K.F., 1979. 'Targets and instruments of economic policy in Papua New Guinea', *Yagl-Ambu*, University of Papua New Guinea, Journal of Social Services and Humanities, Waigani.

———, 1980. 'Mineral taxation policies in developing countries: an application of resource rent tax', *IMF Staff Papers*, 27 April:517-42.

Papua New Guinea Resource Atlas, 1974. E. Ford (ed.), Queensland, Jacaranda Press.

Papua New Guinea, 1984. *Government White Paper on Industrial Development*, Port Moresby.

———, 1979. Report by the Committee of Review into the Plantation Redistribution Scheme, Port Moresby.

———, Central Planning Office, 1976. *National Development Strategy*, Papua New Guinea Government White Paper, Waigani, 27 October.

———, Department of Finance, 1977. *Financial policies relating to mining tax legislation: Statement of intent*, Waigani, October.

———, National Investment and Development Authority, 1980. *National Investment Priorities Schedule, Sixth Edition*, Waigani.

———, National Planning Office, 1978a. *The National Public Expenditure Plan 1978-1981*, Waigani, February.

———, National Planning Office, 1978b. *The National Public Expenditure Plan 1979-1982*, Waigani, November.

———, National Planning Office, 1983. *The National Public Expenditure Plan 1984-1987*, Waigani, November.

———, Office of Forests, 1979. *White Paper: Revised National Forest Policy*, Hohola.

———, Office of Forests, 1983. *Facts and Figures*, Hohola.

———, National Statistical Office, 1978. *Statistical Bulletin*, 'Private Overseas Investment 1976/77', 3 August 1978.

Pintz, W.S., 1984. *Ok Tedi: Evolution of a Third World Mining Project*, London, Mining Journal Books.

Radetzki, M. and Zorn, S., 1979. *Financing Mining Projects in Developing Countries*, London, Mining Journal Books (in cooperation with the United Nations).

Rogerson, R., Williamson, A. and Francis, G., 1984. 'Recent advances in the knowledge of geology, energy resources and metallogenesis of Papua New Guinea since 1981', Department of Minerals and Energy, Geological Survey of Papua New Guinea, *Report 84/1* Port Moresby, March.

Smith, D. and Wells, L.J., 1975. *Negotiating Third World Mineral Agreements: Promises as Prologue*, Ballinger, Cambridge Mass.

Trebilcock, M., 1983. *The Role of the Private Sector in the Economic Development of Papua New Guinea*, Port Moresby, Institute of National Affairs.

Vernon, R., 1967. 'Long-run trends in concession contracts', *American Society of International Law: Proceedings*: 81-89.

Woods, R., 1981. 'Legal Aspects of the Plantation Redistribution Scheme', in M.A.H.B. Walter (ed.), *What Do We Do About Plantations?*, Monograph No.3, IASER, Port Moresby.

World Bank, 1982. *Papua New Guinea: Selected Issues in Development*, (Report of a 1981 economic mission), Washington D.C.

CANCELLED

ISBN 0 86784 761 1
ISSN 0155 9060

Philip Daniel is a Fellow of the Institute of Development Studies at the University of Sussex, United Kingdom; his special interest is in the development problems of mineral-exporting countries. From 1976 to 1981 he was Assistant Director in the Papua New Guinea National Planning Office; he has also worked in a research or advisory capacity in a number of African countries, and for a variety of international agencies. He is the author of *Africanisation, Nationalisation and Inequality: Mining Labour and the Copperbill in Zambian Development*, Cambridge University Press, 1979.

Rod Sims was Special Adviser (Economic) in the Technical Assistance Group of the Commonwealth Secretariat at the time of writing this paper, a position he held from 1982–85. During that time he advised many countries in the South Pacific, Africa and the Carribean on different aspects of microeconomic and macroeconomic policy, including assistance in negotiating with potential foreign investors. He worked in the Papua New Guinea Department of Finance from 1977–82, the last two years as First Assistant Secretary in the General Financial and Economic Policy Division. He is currently First Assistant Secretary, Industry, Trade and Resources Division, in the Department of the Prime Minister and Cabinet, Australia.